Using Your Documentation

Congratulations on your purchase of a Notebook computer. Whether you are new to using a portable computer or are an experienced user, this user's manual can help you get the most from your computer.

Special Features of the User's Manual

Three types of messages with icons appear in the manual:

A note informs you of special circumstances.

A caution warns you of possible damage to equipment.

A warning indicates the possibility of personal injury.

Keys that you need to press to perform certain functions are shown in the manual enclosed in angle brackets. For example,

<Ctrl>

indicates the control key (Ctrl on the computer's keyboard).

If you need to press two keys at the same time, the key names are shown joined by a plus sign. For example,

<Fn+F11>

means that you should press the Fn key and hold it and then press the F11 key.

If you are new to using computers, see "Glossary". The "Glossary" explains general computing terms that are used in this manual and tells you about some of the differences between notebook computers and desktop computers.

Using the Software User Documentation

Your computer shipped from the factory with several software programs installed. The software may include its own online or printed documentation. Refer to the documentation or the Help options in the software for more information.

Introducing Your Computer

Your computer is a lightweight portable computer that includes features to meet your computing needs at home or on the road. Your computer has a CD-ROM drive and a floppy drive within the computer.

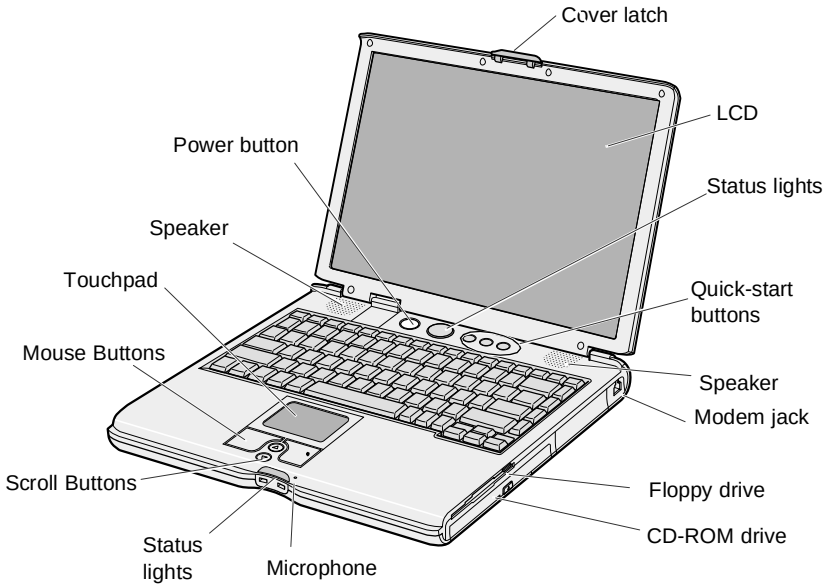


Figure 1. Front View of Computer

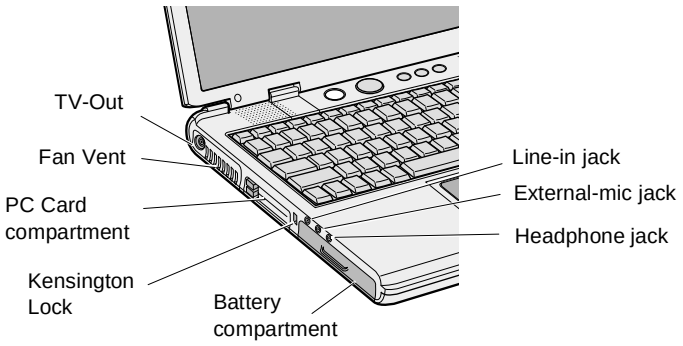


Figure 2. Left View of computer

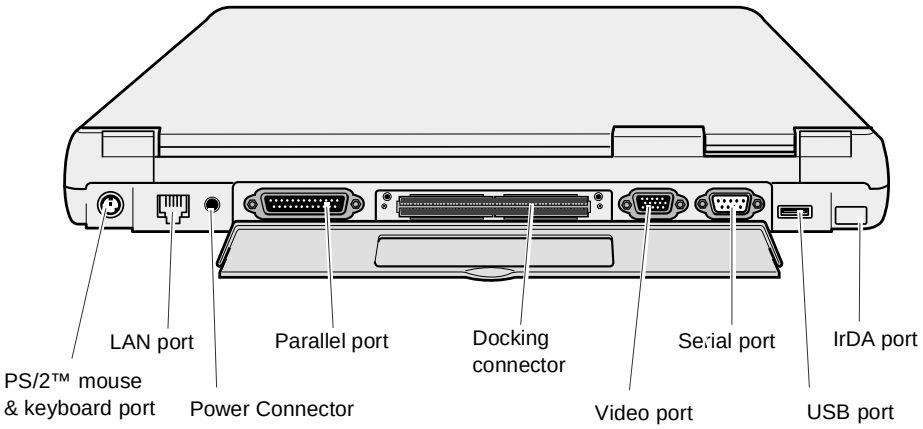


Figure 3. Back View of Computer

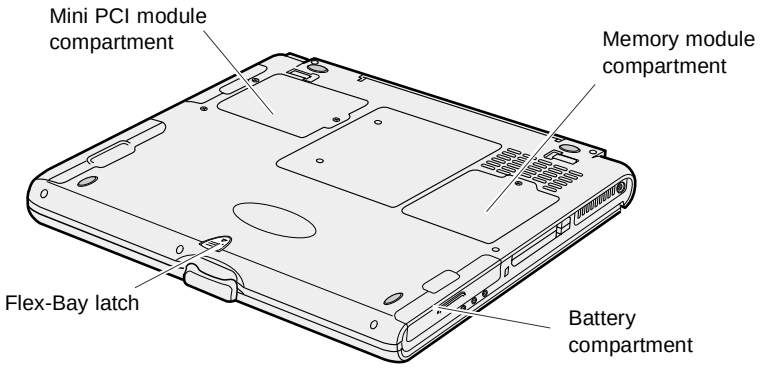


Figure 4. Bottom View of Computer

Using Your Computer for the First Time

This section gives you detailed information on using your computer for the first time.

Attaching the AC Adapter

Your computer runs on power from the battery in the computer or from an electrical outlet. The first time that you use your computer, fully charge the battery by attaching the power cord to the computer and to an electrical outlet.

All batteries lose their charge if they sit unused for an extended time period. When not used, battery can discharge fully in 2 to 3 months. The battery may have discharged in the time it took for the computer to go from the factory to you.

To attach the power cord:

1. Plug the AC adapter into the power connector on the back side of the computer (Figure 5).
2. Connect the power cord to the AC adapter and then to an electrical outlet.

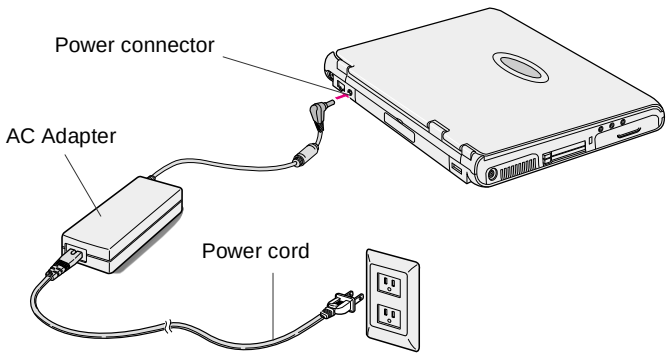


Figure 5. Connecting the AC Adapter

The battery starts charging as soon as you plug the power cord into an electrical outlet. The battery charges faster if the computer is turned off during charging.

If the battery is fully depleted and the computer is turned off, the battery charges in about 3 hours. If the computer is turned on, the battery charges in about 5 hours. When the battery is charging, the battery charge light is amber. When the battery is fully charged, the light turns green.

See ”Using the Battery” on page 35 for more information on using your computer’s battery.

Turning On the Computer

To turn on the computer’s power for the first time:

1. Push to the right and hold the cover latches on the front of the cover.
2. Lift up the cover.
3. Press and then release the power button (Figure 6).

   The power light is on when the computer’s power is on.

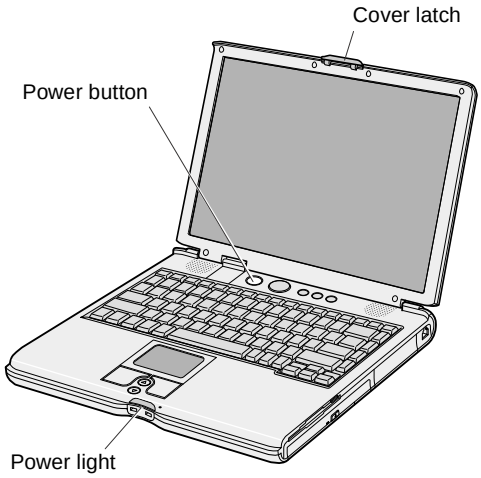


Figure 6. Turning On the Computer’s Power

Understanding POST

When you turn on your computer, a routine called POST (Power-On Self-Test) automatically runs to test the computer components. Several messages appear on the screen during POST.

Screen messages are built into the computer to report both normal and abnormal system conditions. If an error message appears, take any action suggested in the message. If the message identifies the error condition but does not suggest any corrective action, write down the message and contact manufacturer or an authorised service center for assistance. (See ”Troubleshooting” on page 117.)

Adjusting the LCD Display

You may wish to adjust the LCD (Liquid-Crystal Display) when you begin using your computer. A TFT (Thin-Film Transistor) LCD does not require adjustment for contrast because the contrast is set to remain at maximum.

To adjust the LCD:

- Press <Fn+Right Arrow> to increase the display brightness.
- Press <Fn+Left Arrow> to decrease the display brightness.

Turning Off Your Computer

If your computer has a Windows operating system, turn off your computer by performing the shutdown procedure described in this section. Otherwise, you may lose data.

APM(Advanced Power Management) mode

To turn off the computer:

1. Click Start on the taskbar.
2. Click *Shut Down*.
3. Select the shut down option.

4. Click OK or Yes.
   - If the operating system is Windows 98, the computer turns off.
   - If the operating system is Windows NT, you receive a shutdown message and you must press the power button to turn off the computer.

ACPI(Advanced Configuration and Power Interface) mode

Your computer supports ACPI mode. If your operating system supports ACPI and you want to shut down the computer just by pressing the power button, then follow next steps to set the menu in Power Management Properties. Also see “Using Power Management Options” on page 83 and the documentation accompanying your operating system.

To set the menu;

1. Select *Power Management Properties* in *Control Panel*.
2. Select the operations of power button.
   - Suspend mode: operates as Save to RAM mode. (See ”Suspend Mode” on page 84 for more information.)
   - Hibernate mode: operates as Save To Disk mode. Set Hibernate submenu to *enabled* to use Hibernate mode. (See ”Suspend Mode” on page 84 for more information.)

If the system does not power off, then press and hold the power button for over 4 seconds.

Restarting Your Computer

You may need to restart (reboot) your computer when installing hardware or software or if the computer does not respond to your input. A warm (or soft) boot prompts you to save your files, turns off the computer, and then restarts the computer. A cold boot turns off the computer without saving your files.

To perform a warm (or soft) boot:

1. Click Start on the taskbar.
2. Click *Shut Down*.

3. Select the restart option.
4. Click OK or Yes.
5. Save your files if prompted. Your computer reboots.

Do not perform a cold boot unless your keyboard and touchpad have no effect and you cannot perform a warm boot.

When you perform a cold boot, you lose data unless it was saved to a storage medium.

You can also perform a soft boot by saving your files and pressing <Ctrl+Alt+Del>. You can perform a cold(or hard) boot by pressing the power button to turn the computer off, waiting five seconds, and then pressing the power button to turn the computer on.

Tips for Using Your Computer

The following information helps you avoid potential problems as you use your computer:

Do not try to disassemble your computer. Opening the system chassis voids your warranty. Only an authorised manufacturer service center can replace or add any parts inside the chassis.

- Follow all the instructions and cautions in your computer user documentation.
- The LCD has a polarized surface and can be damaged easily. To prevent damage, avoid touching the screen.
- Use only approved AC adapters, auto adapters, memory modules and other options.
- Because a notebook computer is small and has restricted air flow around components, it is more likely to overheat than a desktop computer. A fan inside your computer runs when needed to help eliminate heat. Make sure the fan vent on the right side of your computer is not blocked when you use the computer. (See Figure 2 on page 3 for the location of the vent.) Occasionally check the vents and remove any accumulated dust on the outside.

- Avoid using or storing the computer in extremely hot or cold areas, such as a car on a hot day. Keep the computer away from heaters and out of direct sunlight. Exposure to excessive heat may damage computer components.

  If you have left your computer in a hot place, let it cool down slowly to room temperature (with the LCD panel open) before using it.
- Do not remove the memory-module compartment door, or try to install a memory module when the computer is on. (See ”Bottom View of Computer” on page 4 for the location of the door.)

  (For information on installing memory modules, see “Installing a Memory Module” on page 111.)
- Set up your computer work area to avoid physical strain. Sit with your back straight and supported by your chair. Adjust your chair or work table so that your arms and wrists can remain in a relaxed position, parallel with the floor. Avoid bending or twisting your wrists as you work. Your hands should “float” slightly above the keyboard. Refer to a book on office ergonomics for more information on setting up your work area.
- Take frequent breaks from working at the computer to rest your eyes and stretch your muscles.
- Remember to save your data files frequently and to make backup copies of your files.

Travelling with Your Computer

If you are travelling by air, follow these tips:

- Take the computer with you as carry-on luggage. Do not check the computer with your baggage.
- Allow the computer and disks to go through the X-ray security devices. Do not hand-carry disks through the walk-through metal detectors, which can cause loss of data.
- Make sure that the battery is charged or the power cord is easily accessible. You may be required to turn on the computer for airport security personnel.
- Be prepared to turn off the computer during take off and landing.

Handling Spills

Do not spill anything on your computer. The best way to avoid spills is to avoid eating and drinking around your computer. If you do spill something on your computer, turn off your computer, unplug it immediately, and do the following:

- If you spill liquid on the keyboard, drain as much of the liquid from the keyboard as possible. Be careful not to let the liquid drip onto the LCD panel. Allow the system to dry for several days before trying to use it.
- If you spill liquid on an external keyboard or keypad, unplug it and drain as much of the liquid as possible. Allow the keyboard to sit at room temperature for a full day before trying to use it.

Sweet liquids leave a sticky residue that may jam the keyboard despite your efforts to dry it.

- If you spill liquid on the LCD panel, clean it immediately with a soft cloth and denatured alcohol. Do not use water, window cleaner, acetone, aromatic solvent, or dry, rough towels to clean it.

Some liquids damage the polarized LCD screen. If your screen is damaged, contact your authorized manufacturer's service center for a replacement.

Storing the Computer for Long Periods

If possible, leave the power cord connected to the computer and an electrical outlet when the computer is not in use. This extends the life of the battery and keeps the battery fully charged.

If you will not be using the computer for a long period of time (a month or more), you should charge the battery until it is completely full. After you have done so, remove the battery from the unit.

Using the Keyboard

Your computer has an 87/88-key keyboard (Figure 7). By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.

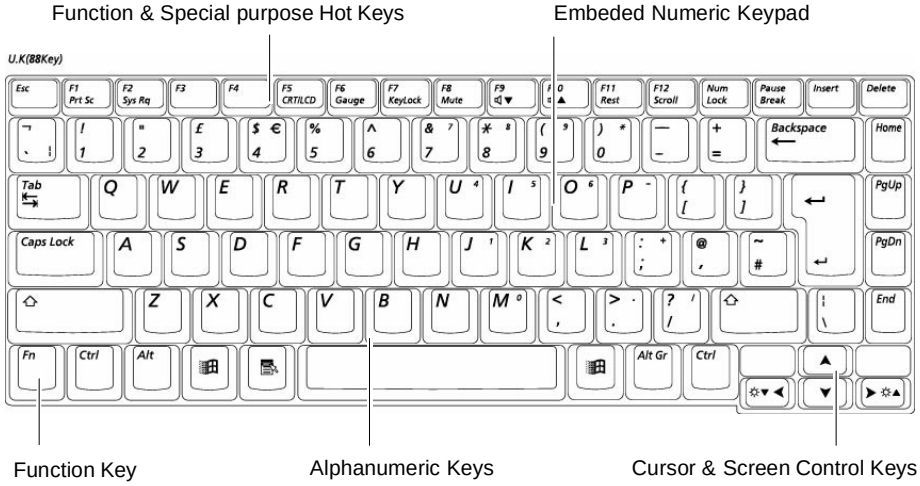


Figure 7. Keyboard

Although the layout of the keys on your computer's keyboard is different from that on a desktop computer's keyboard, the keyboard feels like a full-sized keyboard when you use it.

The keys on the keyboard can be grouped into the following categories:

- Full-sized Alphanumeric typewriter keys are arranged like a standard typewriter keyboard and are used for text entry. The Windows keys on either side of the spacebar open Windows menus and perform other special functions.
- Function keys, when pressed together with the <Fn> key, enable special functions.
- Cursor and Screen control keys move the cursor. They may perform other functions, depending on your software.

To clean the computer keyboard, use slightly damp cotton swabs. Scrub the key and the surface around the keys.

Do not allow liquid to drip into the keyboard or you may damage the keyboard.

Using the Numeric Keypad

Your keyboard includes a numeric keypad, which is a group of keys that you can set to type numbers and mathematical symbols, such as the plus sign (Figure 8). A number or symbol on the right corner of each keypad key shows its numeric function.

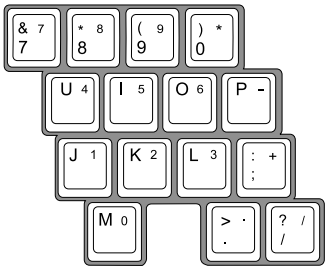


Figure 8. Numeric Keypad

Press <Num Lock> to turn on the embedded numeric keypad. The numeric functions of the keypad are enabled and the Num Lock light turns on. (See "System Status Lights" on page 18 for the location of the Num Lock light.)

While the numeric functions are enabled, you can temporarily return a key to its normal function by pressing <Fn> and the key. For example to type the letter *m*, press <Fn+m>.

To turn the numeric keypad off, press <Num Lock> again. The Num Lock light turns off.

Using Special Function Keys

The <Fn> key activates special functions when it is pressed in combination with another key. Table 1 shows the special key combinations.

Table 1. Description of Special Function Keys

<Fn> Key Combination	**Function**
<Fn+F1>	*Print screen:* Takes a picture of the open screen, which you can paste into the Paint program.
<Fn+F2>	*System request:* Reserved for use in software programs.
<Fn+F5>	*CRT/LCD:* Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
<Fn+F6>	*Gauge:* Displays the battery gauge in the upper-right corner of your screen. The gauge closes in a few seconds, or you can press <Esc> to close the gauge. (See ”Monitoring the Battery Charge” on page 38 for more information on the battery gauge.)
<Fn+F7>	*KeyLock:* Locks the keyboard and activates password protection. Type your password and press <Enter> to unlock the keyboard. The <Fn+F7> key combination has no effect unless a password is enabled in System Setup. The Num Lock, Caps Lock, and Scroll Lock lights blink when the keyboard is locked.
<Fn+F8>	*Mute:* Turns the audio output on and off.
<Fn+F9>	*Volume down:* Decreases the audio volume.
<Fn+F10>	*Volume up:* Increases the audio volume.
<Fn+F11>	*Rest:* Puts the computer into Suspend mode. To resume normal operation from rest, press the power button. (See ”Using Power Management Options” on page 83 for more information about the rest mode.)
<Fn+F12>	*Scroll:* In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing <Fn+F12> again turns off the scrolling function.
<Fn+Right Arrow>	*Brightness up:* Increases the LCD brightness.
<Fn+Left Arrow>	*Brightness down:* Decreases the LCD brightness.

When you press a function key combination, the system sound may be temporarily muted.

Quick Start Buttons

Use Quick start buttons to start the program just by pressing the button.

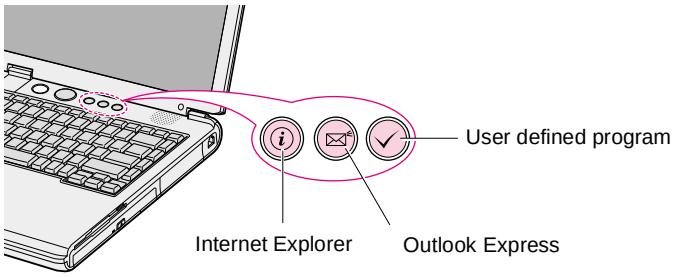


Figure 9. Quick Start Buttons

- Internet Explorer: Start Microsoft Internet Explorer.
- Outlook Express: Start Microsoft Outlook Express to use e-mail service.
- User defined program: Start user defined program. You can define the frequently used program with this button, now the ’Calculator’ program is connected.

Using the Touchpad

Your computer is equipped with a touchpad, which is an integrated-pointing device that is used to perform standard mouse functions (Figure 10). The touchpad is an advanced and reliable pointing device that works with a touch of your finger.

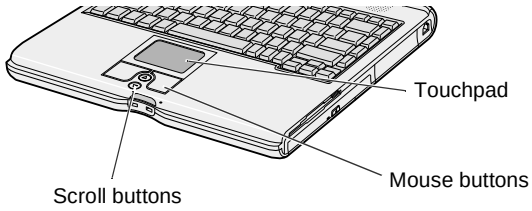


Figure 10. Touchpad

Table 2 explains how to use the touchpad.

Press on the touchpad gently. The touchpad responds to light pressure

Table 2. Using the Touchpad

Mouse Action	How To
Move cursor	Place your finger on the touchpad and slide your finger in the direction you want the cursor to move. The faster you move your finger, the faster the cursor moves across the screen.
Click	Tap the touchpad once with your finger.
Double-click	Tap the touchpad twice with one finger.
Scroll up (Windows 98)	Place your finger on this button to scroll up the current window.
Scroll down (Windows 98)	Place your finger on this bottom to scroll down the current window.

You can use the buttons below the touchpad in the same way you would use standard mouse buttons. For more information on these features and other features supported by your mouse driver such as button assignment, see the Mouse properties in the Control Panel.

You can also use the scroll buttons as the way you would use the standard mouse scroll button. It is convenient to drag the screen in the word processor or in the internet. The scroll up/down buttons are available only under Windows98/2000 with the touchpad driver supplied by supplier.

For information on attaching and using another pointing device or keyboard with your computer, see “Connecting Peripheral Devices” on page 20.

Reading the System Status Lights

System Status lights show the status of computer functions.

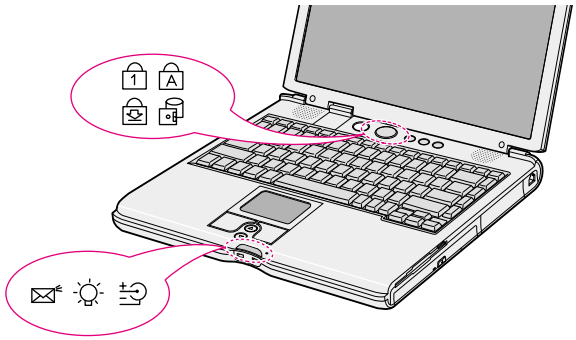


Figure 11. System Status Lights

Table 3 describes the meaning of the lights.

Table 3. System Status Lights

Icon	Function of Light
	E-mail: Light is on when e-mail arrives. To work this function out, you have to register E-mail Account on *Register E-mail Account* window. Select Start > Program > StartUp > Internet Launcher to register E-mail account.
	Power light: Light is green when the computer's power is on. Light blinks when the computer is in Save to RAM mode. (See "Suspend Mode" on page 84 for more information on Save to RAM mode.)
	Battery charge light: When the power cord is connected, light gives information about the battery charge. Light is amber when the battery is charging normally. Light is green when the battery is fully charged. (See "Charging the Battery" on page 35 for more information about charging the battery.)

Num Lock light: Light is on when the embedded numeric keypad is activated. See ”Using the Numeric Keypad” on page 13 for a description of the keypad.

Caps Lock light: Light is on when the caps lock function is activated. When the function is activated, all alphabetic characters you type will be in upper case.

Scroll Lock light: Light is on when the scroll lock function is activated. The scroll lock function affects cursor movement and text scrolling in some applications. This is a software specific function. Refer to the appropriate software manuals for a description of the <Scroll> key.

Drive light: Light is on when the hard drive or floppy drive is being accessed. Do not turn your computer off when this light is on. When the light is amber, the floppy drive is being accessed. When the light is green, the hard drive is being accessed. For a CD-ROM or DVD-ROM drive, check the light on the drive itself to see if the drive is being accessed.

Connecting Peripheral Devices

The connectors on your computer enable you to attach peripheral devices to the computer (Figure 12).

Turn off your computer before you connect a peripheral device. Connecting a peripheral device with your computer turned on may seriously damage the device or your computer.

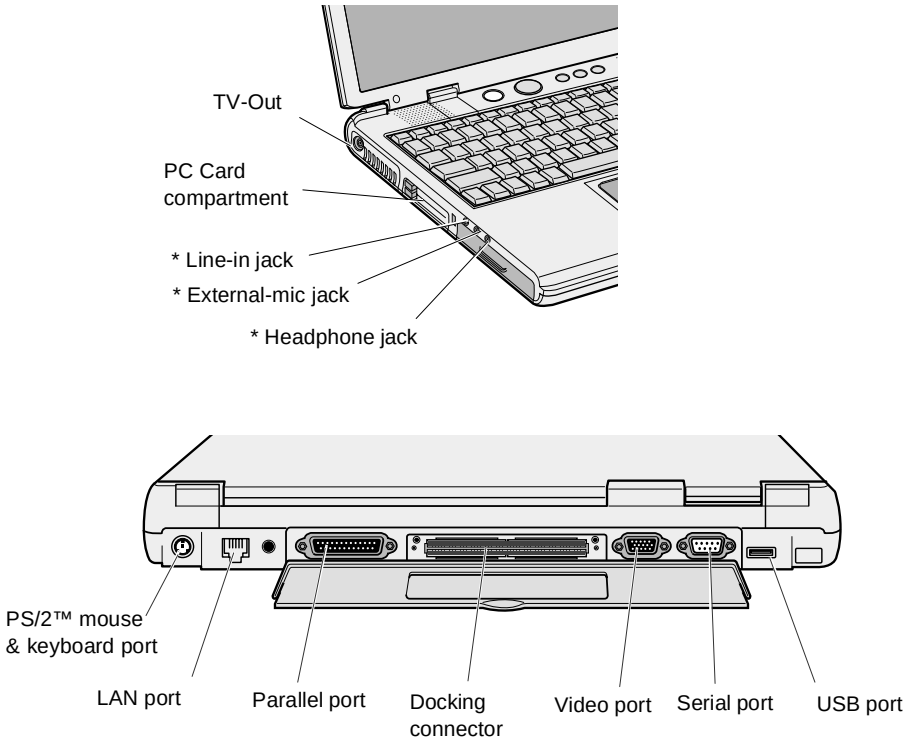
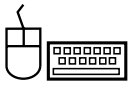
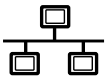


Figure 12. Peripheral Connectors

Table 4 shows the icons located near each connector and tells you the devices that you can attach to the connectors.

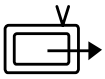
Table 4. Connecting Peripheral Devices

Icon	Connector
	*PS/2 (IBM Personal System/2) mouse and keyboard port:* Connect a PS/2-compatible mouse or external keyboard or keypad to this port. Make sure your computer is turned off when you attach peripherals to the port. You can use the computer's touchpad and a PS/2 keyboard at the same time, see PS/2 Mouse Configuration in the Advanced section on 73 for more information.
	*LAN port:* Connect a LAN cable to connect to internet.
	Parallel port: Plug a parallel device, such as a parallel printer this 25-pin port.
	Docking connector: Connect the computer to its docking station.
	Video port: Plug the interface cable of an external monitor into this 15-pin connector and then plug the monitor power cord into a grounded outlet.
	Serial port: Plug a serial device, such as a serial mouse, into this 9-pin port. If the device has a 25-pin connector, you need a 25-to-9-pin serial adapter.
	USB (universal serial bus) port: Connect USB devices to this port. USB devices include keyboards, pointing devices, and monitors.
	Modem jack: Connect a telephone line to connect to the internet or send/receive faxes, see the modem user's manual for more information

Headphone jack : Connect stereo headphones or speakers to this jack. Speakers connected to this jack override the internal speakers.

Microphone jack : Connect an external microphone to this jack.A microphone connected to this jack overrides the internal microphone.

Line-in jack: An input for external audio.



TV-out port: plug a phono to scart cable into this port and the other end of the cable into an external TV. No audio is transmitted via this port.

If your computer's operating system is Windows 98 or Windows 2000, you can enable and use the USB port. The Windows NT 4.0 operating system does not support USB.

Using the Flex-Bay

Your computer includes the Flex-Bay, a peripheral bay that can hold one of the following devices:

- CD-ROM drive: shippped with some computers and also available as an option.
- DVD-ROM: shippped with some computers and also available as an option.
- Optional secondary hard drive: available as an option for your computer.
- Superdisk LS-120: available as an option for your computer.

If your operating system is Windows 98, you can use the SwapBay Utility to hot-swap the devices. If you do not use Windows 98, make sure that the computer's power is off before you remove or install any devices.

To remove a device from the Flex-Bay

1. Turn the computer's power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
3. Pull up on the Flex-Bay latch and pull the device from the bay.(Figure 13)

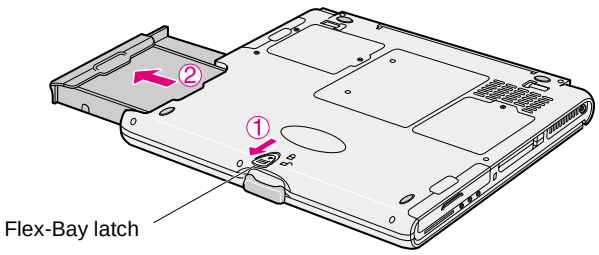


Figure 13. Removing a Device from the Flex-Bay

4. Remove the device out of the bay.

To install a device in the Flex-Bay:

1. Turn the computer's power off.
2. Place the device into the bay.
3. Push the device in until it is flush with the chassis.
4. Push down on the Flex-Bay latch until the latch snaps into place.

Your computer's operating system automatically recognizes the device in the Flex-Bay and configures your computer accordingly.

Using the SwapBay Utility

If your computer shipped with Windows 98, you can use the SwapBay utility to hot-swap your devices in the flex-bay.

To start the SwapBay utility:

1. Click the Start button on the Windows taskbar.
2. Select *SwapBay Utility.*

To remove a device:

1. Open the *SwapBay Utility*.
2. Click *Device Remove.*
3. Click *OK* on the confirmation screen.
4. Remove the device by either disconnecting the cable from the computer or from the device.
5. Click *Ok.*

To insert a device:

1. Open the *SwapBay Utility*.
2. Click *Device Install.*
3. Connect the device to the computer using the device cable. Make sure all connectors are correctly attached.
4. Click *Ok* to allow your computer to detect the device.

If you have difficulty in getting a device detected, go through the Remove procedure and Insert procedure again.

Using the Floppy Drive

Your computer comes with a 1.44 MB, 3.5-inch, high-density floppy drive, which can read, write to, and format the following disks:

- A high-density, 3.5-inch disk, which stores 1.44 MB (megabytes) of data.
- A double-density, 3.5-inch disk, which stores 720 KB (kilobytes) of data.

The floppy drive in your notebook computer is smaller, but more power-efficient, than a floppy drive in a desktop computer. To get the best performance from your floppy drive use high-quality floppy disks.

To use a floppy disk in the computer, insert it into the floppy drive (Figure 14).

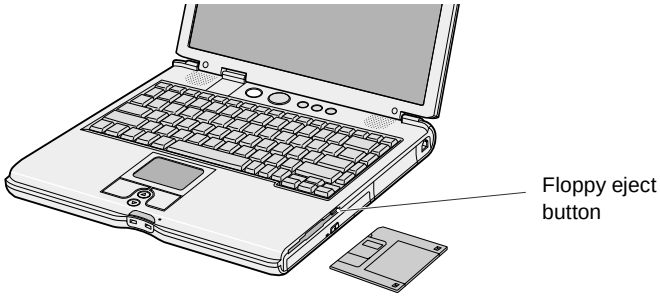


Figure 14. Inserting a Floppy Disk

To remove a floppy disk, press the eject button on the floppy drive.

The floppy drive light on the computer is on when the computer writes to or reads from a floppy disk. Do not remove a disk when this light is on.

To protect the data on your floppy disks, follow these guidelines:

- Keep disks away from excessive heat, direct sunlight, and liquids.
- Keep magnets and any device that contains a magnet (like the telephone) away from your disks.

Magnetic fields can destroy the information on a disk.

- Do not write directly on a label on your disk; instead, write on a disk label first and attach the label to the disk.
- Make copies of all your important disks.

Using the CD-ROM Drive

Compact discs are designed so that you can easily insert one into the computer when you need it, and then remove it.

1. Press the button on the CD-ROM drive, and the tray slides out. (Do not lean on the tray; it does not support much weight.)

If the tray fails to slide out it may be stuck, in which case straighten out a paper clip, insert it into the small hole in the front of the CD-ROM and push it until the tray ejects.

2. Insert a CD (compact disc), label side up (or remove a disc, if you have finished using it).
3. Push the tray in gently to close the drive tray (Figure 15).

   A light on the drive tray is on when the computer is reading from a CD. Do not remove a disc when this light is on.

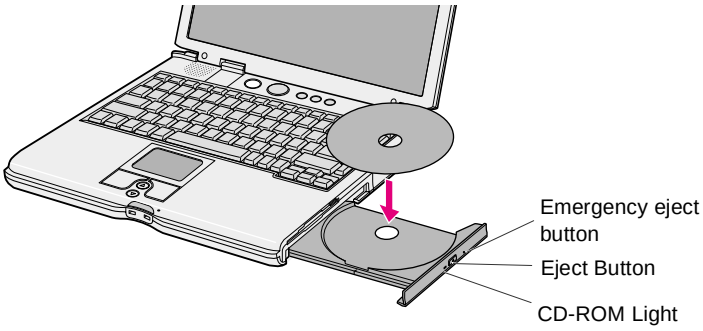


Figure 15. Using the CD-ROM Drive

Install and start a CD-based program as you would run a program on a floppy disk. See your operating system documentation for more information on running programs.

The name of the CD-ROM drive is the letter following the letter assigned to your last hard drive. For instance, if you have one hard drive with two hard drive partitions, the hard drive is drives C: and D: and the CD-ROM drive is drive E.

If necessary, you can use the emergency eject button to open the CD-ROM drive. To use the emergency eject button, turn the computer's power off and insert a small object, like an straightened paperclip, into the hole to press the button.

Do not place reflective objects in the disc slot because of possible hazardous laser emissions.

The laser beam used in this CD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD-ROM drive. Refer servicing to your authorised service center.

The on-board audio hardware and software of your computer enable the computer to play audio compact discs. If you wish to do so, you can attach external speakers to the Headphone jack.

To play an audio compact disc:

1. Insert a compact disc into your CD-ROM drive:
   a. Press the button on the CD-ROM drive, and its tray slides out.
   b. Insert a CD, label side up.
   c. Push the tray in to close the drive tray. The CD Player button appears on the taskbar.

   The disc begins to play.

   A light on the drive tray is on when the computer plays a CD. Do not remove a disc when this light is on.
2. To adjust the sound, press the following key combinations:
   - <Fn+F9> decreases volume.
   - <Fn+F10> increases volume.

To remove the CD:

1. Click the CD Player button on the Windows taskbar to open the CD Player window (Figure 16).

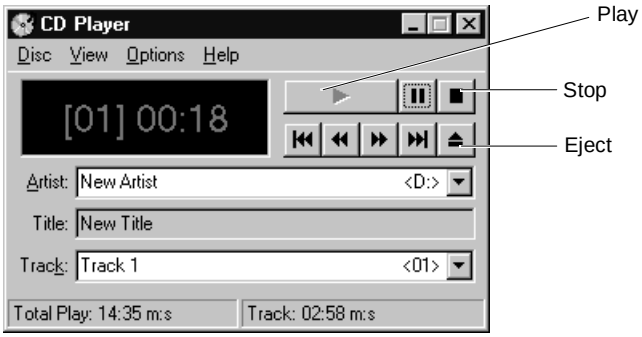


Figure 16. CD Player Window

2. Click the Stop button in the CD Player Window.
3. Click the Eject button on the CD Player window or press the button on your CD-ROM drive. The drive tray opens and you can remove the disc from the CD-ROM drive.
4. For more information on playing compact discs, see the Help menu in the CD Player window.

Using the DVD-ROM Drive

See ”Using the Flex-Bay” on page 23 for information on installing the DVD-ROM drive into the computer.

The DVD-ROM drive operates the same as the CD-ROM drive. The DVD-ROM drive and the DVD Player are supported by Windows 98/ 2000.

Your DVD-ROM drive will play DVD-ROM and CD-ROM discs.

Installing the DVD Player MPEG-2 Software

The DVD software CD containing the DVD Player MPEG-2 software is optional with DVD-ROM drives.

1. Start Windows 98 and insert the CD Labelled *DVD Player* into the DVD ROM Drive.
2. The Installation application will start automatically, so follow the on-screen instructions to complete the installation.
3. Reboot the system.
4. Make sure that DMA access is enabled for the DVD Drive:
    a. From "Control Panel" open the "System" icon.
    b. Select the "Device Manager" tab.
    c. Click the "Plus sign" beside the CD-ROM entry and select the DVD-ROM drive.
    d. Click the "Properties" button and select the "Settings" tab.
    e. Check the "DMA" check box.
    f. Click "OK" and restart the system.

For more information on playing MPEG-2 movies and discs, see the Help menu in the DVD Player window.

Using the Hard Drive

Your computer includes a removable IDE (integrated drive electronics) hard drive. The IDE hard drive can store the data and programs your computer uses. The drive plugs into a connector on the system board.

Although the storage capacity of hard drives varies according to model, any hard drive holds much more than a floppy disk does. Also, the computer reads and works with a hard drive more rapidly than with a floppy disk.

Once information is saved on a hard drive, it remains there until it is overwritten. Hard drive heads park automatically when you turn off your computer.

The hard drive that comes with your computer has already been formatted. Do not format the hard drive. Doing so destroys all data contained on the drive. If you need to format a new drive, or want to erase all data on your existing hard drive, refer to the manual for your operating system.

The drive in your computer maybe divided into partitions. The file allocation table enables the partitions to locate files and directories.Your computer recognizes each partition as a separate drive, for example, if a hard drive has two partitions, they could be recognized as drive C and drive D.

Although Windows 98 can work with FAT-16 or FAT-32 (a 32-bit file allocation table), your computer has been supplied with FAT-32. Older software that you may have (16-bit software) may require FAT-16 to run. Similarly Windows NT 4.0 can use FAT-16 or NTFS (the Windows NT file system). There are utilities included with Windows 98 and Windows NT 4.0 to convert from FAT-16 to FAT-32 or NTFS, see the documentation included with your operating system for more information.

Windows 2000 can use FAT16, FAT32 and NTFS.

It is not possible to convert from FAT-32 or NTFS to FAT-16 without reformatting your hard drive.

Removing the Hard Drive

To prevent loss of data and damage to the disk, do not remove the hard drive while the computer's power is on and do not drop or jar the hard drive.

To remove the hard drive from the computer:

1. If you are installing a new hard drive, backup the application and data files on the old hard drive before removing it from the computer.
2. Turn the computer's power off.
3. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
4. Remove the screw that holds the hard drive in place (Figure 17).

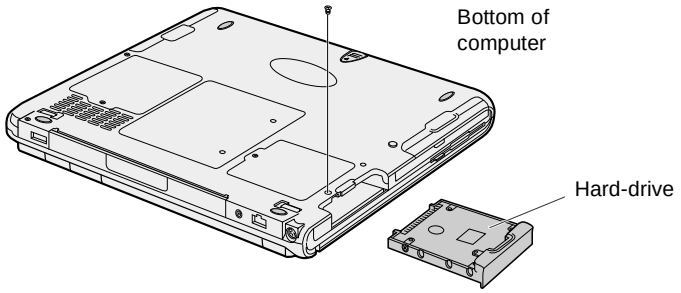


Figure 17. Removing the Hard Drive

5. Pull the hard drive out of the computer.

Installing a Hard Drive

To install a hard drive:

1. Remove the old hard drive from the computer as described in the previous section.
2. Slide the new drive into the hard drive compartment. Make sure the drive is pushed back as far as it will go.
3. Install the screw that holds the hard drive in place.

4. If you intend to use save to disk mode, see "Creating a Save to Disk Partition" on page 87.
5. Format your drive and reinstall your files. See the Operating System and Original Driver and Application Restore Instructions that accompanied your system for more information on this.

Using the Battery

Your computer uses a smart rechargeable Lithium-ion (Li-ion) battery pack for power when the AC adapter is not attached to an electrical outlet. The smart battery gives a accurate measurement of the current battery capacity which helps extend operating time by enabling effective power management in operating systems that take advantage of the accurate information supplied by the battery.

Charging the Battery

Your computer's battery starts charging automatically when you connect the power to the computer and to an electrical outlet. If the computer is off, the battery charges faster than if the computer's power is on.

Approximate charging times for the Li-Ion battery are

- 3 hours with the computer off.
- 5 hours with the computer on.

While the battery is charging normally, the battery charge light on the computer is amber (See "System Status Lights" on page 18 for the location of the battery charge light). When the battery is fully charged, the light changes to green.

When you use a new battery pack for the first time or use a battery after a long period of storage, the initial battery life is shorter than normal. Normal battery life resumes after a few discharge-recharge cycles.

Follow these rules for charging your battery:

- A battery normally discharges power when not used for long periods of time. Be sure to recharge the battery every two months when it is not in use.
- Make it a practice to discharge your battery fully before recharging the battery. This can help extend the life of the battery.
- Do not attempt to charge the battery in temperatures of under 41° F (5° C) or over 95° F (35°C.)

All batteries eventually wear out and lose the ability to hold a charge. You may need to replace your battery pack after a year of average usage.

Safely Using the Battery

Follow these guidelines to safely use the battery:

- Turn off your computer and unplug it if you accidentally:
  - Expose the equipment to liquid.
  - Drop, jar, or damage the computer.
- Use only approved battery chargers
- Do not disassemble the battery, heat it above 212° F (100° C), or burn it. The battery used in this computer may cause a fire or chemical burn if mistreated.
- Your computer's rechargeable battery may be considered hazardous waste. If you replace your battery with a new one:
  - Keep the old battery out of the reach of children.
  - Dispose of the old battery promptly.
  - Make sure that you follow all local requirements when you dispose of the old battery.

Removing the Battery

Your computer comes with the battery pack inserted in the computer. To remove the battery from the computer:

1. Turn the computer’s power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.

3. Slide the battery compartment cover straight up and off the computer (Figure 18).

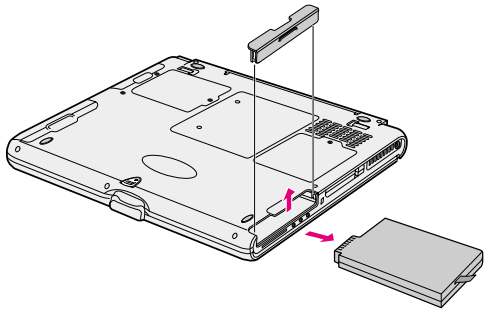


Figure 18. Removing the Battery Pack

4. Grasp the tab on the battery and pull the battery out of the compartment.

Installing the Battery

To install the battery pack:

1. With the computer's power off, close the LCD panel and turn the computer over so the bottom of the unit faces up.
2. Slide the battery compartment cover straight up and off the computer(Figure 19).

Insert the battery into the battery compartment, ensuring the correct orientation so that the battery fits in its slot properly.

3. Slide the battery pack into the compartment. Make sure the battery is fully inserted into the compartment.
4. Align the tabs on the battery compartment cover with the slots on the battery compartment.

5. Push the cover straight down until it snaps into place.

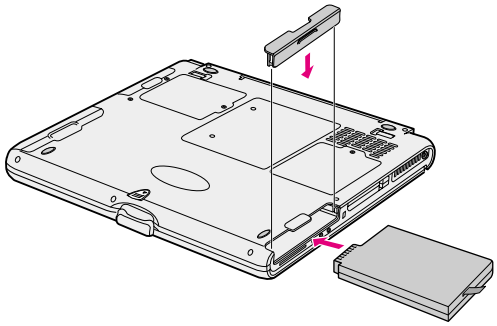


Figure 19. Installing the Battery

Monitoring the Battery Charge

Battery life is affected by factors such as the power-management settings in System Setup, the applications you use, and the brightness settings of the LCD. Under normal usage, the battery charge lasts approximately 3 hours.

Battery life estimates are subject to variation. The actual life of your battery may be less than the estimates given in the manual.

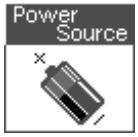
You can monitor the charge of the battery pack installed in your computer through the battery gauge.

Using the Battery Gauge

Press <Fn+F6> to display the battery gauge on the LCD. You can display the battery gauge while you are in any program.

The gauge has five sections:

- Indicates that the computer is powered by the AC adapter.



- Indicates that the computer is powered by the battery.

- Shows you current PMS(Power management Setting) status which is set in the Windows Control Panel. It indicates that the system is in power saving mode.

- Shows you current PMS(Power management Setting) status which is set in the Windows Control Panel.

- The top/right section indicates the approximate amount of the primary battery charge remaining.

While the battery gauge is displayed, all keys except <Esc> are disabled. The battery gauge closes in a few seconds, or you can press <Esc> to close it.

Battery Warnings

Your computer gives you the following low-battery warnings (Table 5).

Table 5. Battery Warnings

Warnings	Condition	Action to Take
The power LED blinks.	Battery low: The battery charge is about 10 percent. Approximately 5–10 minutes of battery charge is left.	Save your work. Use the power cord to power the computer or turn off the computer and install a fully charged battery.
The computer automatically goes into rest mode.	Battery very low: The battery charge is about 3 percent.	Use the power cord to power the computer and charge the battery.

The above features are valid with Windows 95 or any other APM compliant operating systems. In the case of a Windows 98 or any other ACPI compliant operating system which is running on APM interface, you should adjust the battery alarm features by using the operating systems power management program (Control Panel > Power management in Windows 98).

Windows 98 can operate in APM or ACPI mode, in the APM mode you should select the Suspend mode of the low battery situations (Save to RAM/Save-to-Disk) in BIOS setup, See “Power Menu” on page 76. Also see “Using Power Management Options” on page 83

If you cannot run your computer from the battery and the battery will not charge when you attach the power cord, the problem may be that:

- The battery temperature is below 41° F (5° C) or over 95° F (35° C). If you think the battery temperature is too hot or too cold, turn off the computer, remove the battery, and let the battery reach room temperature. Then try charging the battery again.
- The battery is defective. Replace the battery with a new battery.

Using the Modem

Depending on the model of the Notebook computer that you have purchased you may or may not have a modem installed in your computer. If you are unsure as to whether or not you have a modem installed look for the Modem Port at the side of your computer. Having this port means that you have a modem installed in your computer. Modems are factory installed and are not user installable.

SENS Modem Naming Convention

SENS Modem Name is determined by the following rule.

SENS MM NN A B C Mode
1 2 3 4 5

1. MM: Chipset Vendor

   LT - Lucent Technologies
   RW - Rockwell (Now, Conexant)
   PT - PCtel
   CX - Conexant (Old, Rockwell)

2. NN: Maximum Speed

   56 - 56K
   336 - 33.6K

3. A: Interface

   P- PCI Interface
   M - Mini PCI Interface
   A - AMR/ MDC Interface
   I - ISA behind Intel 82559
   None - ISA Interface

4. B: Supported Functions

   V - DATA/FAX/TAM/Speakerphone
   T - DATA/FAX/TAM
   D - DATA/FAX

5. C: Worldwide Support

W - Worldwide DAA
None - Domestic DAA

In the case of Worldwide DAA, modem should pass the individual country's PTT in order to support that country. Check which countries can be supported by the SENS modem with your local distributor before you use it.

Precautions before use

The SENS Modem with a PCI interface or mini PCI does not support DOS mode. You can use DOS box in Windows 98 instead of pure DOS mode.

If you connect the modem to the digital key-phone line, the modem will be damaged.

If you use the modem on a PBX system (Key-phone system)

If you use a simple terminal program

you should type "ATX3&W" or "ATX3" command as an initialization command.

If you use a Windows Communication Program

Follow the instructions below.

1. Click the *Start* button and then point to *Settings*.
2. Click *Control Panel.*
3. Double-click *Modems* icon and the click *Properties* button at the *General* tab.
4. Check off "Wait for dial tone before dialing" check box at the *Connection* tab.

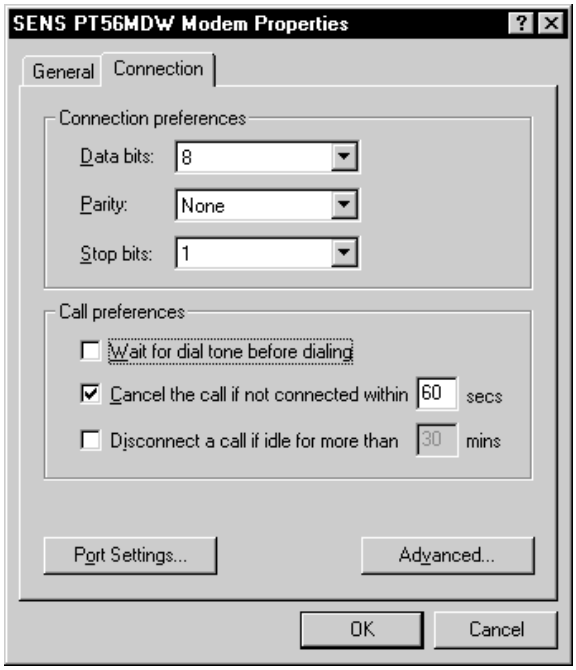


Figure 20. Modem Properties Dialog Box

5. Click *OK* button to close the dialog box.
6. Click *OK* button to close "Modem Properties" dialog box.

Description of 56K

There are different standards regarding 56K technology.

- K56Flex.
  Technology developed by Rockwell Semiconductor Systems and Lucent Technologies
- X2.
  Technology developed by USR (US Robotics, now 3Com)

K56Flex and X2 are not interoperable.

- V.90 Standard.
  In February 1998, The ITU-T (ITU Telecommunication Standardization Sector) agreed on the technical specifications for 56K modems (V.90) and has approved in mid-September, 1998.

  But, the modem driver can be updated to resolve fine points of operation between different vendor's modems and unusual telephone line conditions.

1. Due to FCC limitations, speeds of 53kbps are the maximum permissible transmit power levels during download transmissions.Actual data speeds will vary depending on line conditions.

2. In order to use the 56K feature, be sure to check if the standards supported by the on-line service provider and the modem are identical.

If you use a PBX phone system, you can not connect using the 56K mode due to line loss.

Specification

- Data communications.
  V.90, K56Flex, V.34+, V.34, V.32bis, V.32, V22bis, V.22, V.23, V.21 BELL212A
- Data throughput speed

  56,000 bps ~ 28,000 bps (V.90, downstream only, step: about 1333 bps)

  56,000 bps ~ 32,000 bps (K56Flex, downstream only, step: 2000 bps)

  33,600 bps ~ 2,400 bps (step: 2400 bps)

  1,200 bps

  300 bps
- Fax mode support.
  V.17, V.29, V.27ter, V.21ch2
- Fax throughput speed.
  14400, 12000, 9600, 7200, 4800, 2400, 300

- Data compression feature.
  V.42bis, MNP CLASS 5
- Data correction feature.
  V.42 LAPM, MNP CLASS 2~4
- Fax capacity.
  CLASS 1
- Plug and Play feature.
  Microsoft Windows 95/98 Plug and Play Support
- PCI 2.1, PPMI 1.0 support

Installing the Modem Driver in Windows 98 (Modem Module Driver)

You can install the modem driver as shown in the following.

The figures illustrated in this manual may not be identical to those on your system.

Install the Modem Driver

Before you install the modem drivers, check if the *PCI Card* under *Other devices* of *Device Manager* tab of Control Panel on Windows exists. If it exists, remove it first.

After that, install the modem driver according to the instructions below.

1. If the Windows 98 automatically detects the modem and shows the dialog saying *This wizard searches for new drivers for PCI Card*, click *Next* button.
2. Choose *Search for the best driver for your device (Recommended)* and then click *Next* button.

3. Check *Specify a location* check box in the dialog for specifying the search location. Insert the CD or floppy diskette that has a modem driver in it, enter the directory location as the following, then click *Next* button.

Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
D:\Modemdrv
Browse...
< Back
Next >
Cancel

Figure 21. Specify a modem driver location

In this manual, "D" refers to the CD-ROM drive. The directory path is subject to change depending on models.

4. If Windows 98 found *SENS PT56MDW Modem* driver, click *Next* button.
5. Click *Finish* button when a dialog appears saying that installation is completed.
6. In order to complete the driver installation, you must restart the system.

Selecting a Country

You have to check if the country is selected correctly before you use the modem.

If the country is not selected correctly, the modem may not work properly. So, you must check if the country you're calling from is selected appropriately and then use the modem. If your modem only supports "Domestic", you must

select the country where you bought your notebook computer. And, if you use the modem in other countries, you modem may not work properly. If your modem supports "Worldwide", please check with your local distributor which countries can be supported by the SENS modem.

1. Click the *Start* button, point to *Settings*, and the click *Control Panel*.
2. Double-click the *SENS PT56MDW Modem* icon.
3. Select the country at the *Country* list box.

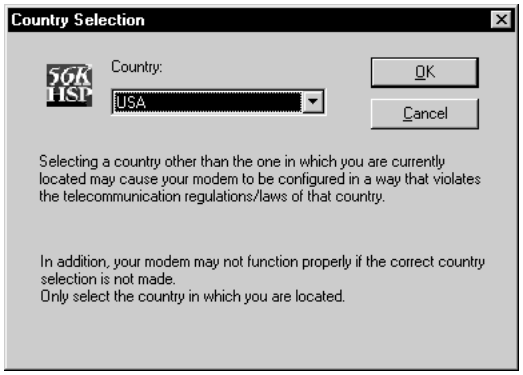

Country Selection
56K HSP
Country:
USA
OK
Cancel
Selecting a country other than the one in which you are currently located may cause your modem to be configured in a way that violates the telecommunication regulations/laws of that country.
In addition, your modem may not function properly if the correct country selection is not made.
Only select the country in which you are located.

Figure 22. Select country in Windows 98

Check if My location is set properly at telephony of Control panel before using modem.

Confirming Installation of the Modem Driver

After the modem driver is installed, you can check if the modem driver is installed properly.

1. Click the *Start* button, point to *Settings*, and then click *Control Panel*.
2. Double-click *Modem* icon.
3. Go to *Diagnostic* tab when the *Modem Properties* dialog appears.

4. Select the port that the modem is installed in and then click the *More Info* button.

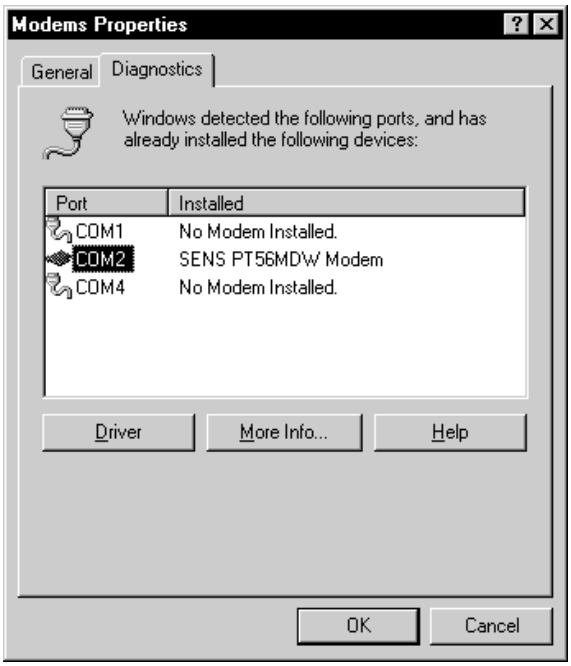


Figure 23. Diagnostics tab in Modem Properties

The port where your modem is installed may be different from that of the above picture.

5. The modem is properly installed if you can see the following dialog.

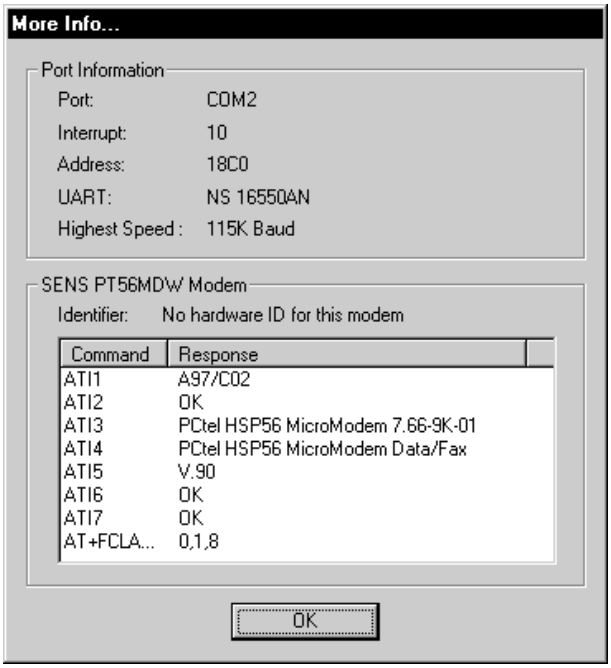


Figure 24. More Info Dialog Box

If the modem is not properly installed, install the driver again.

Installing Modem Driver in Windows NT 4.0 (Modem Module Driver)

You can install the modem driver as shown in the following.

The figures illustrated in this manual may not be identical as those on you system. The figures in this manual were developed using the *SENS PT56MDW Modem* installation as a reference.

At the BIOS setup, *Installed OS* must be set as '*Other/NT4.0*'. When you install the driver or remove the driver, you must log in as *Administrator.*

If your modem driver is already installed, you must remove the existing mode driver first. Remove the driver by selecting SENS PT56MDW Modem at Add/ Remove programs of Control panel.

Install the Modem Driver

1. Insert the CD or floppy diskette that has the modem driver on it.
2. Click the *Start* button, and then click *Run*. Locate the directory that contain the modem driver and run Setup.exe. ('D' refers to the CD-ROM driver)

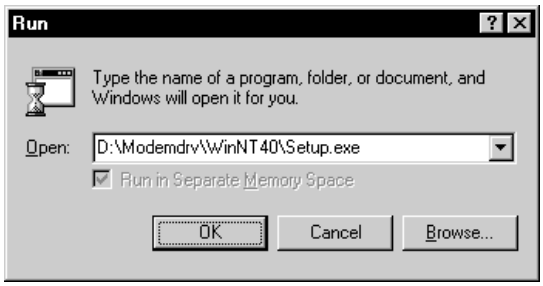


Figure 25. Running the modem driver

3. Click the *Next* button when the *Setup Wizard* dialog appears.
4. Click the *Next* button when the dialog for *Resource Settings* appears
5. Select current country and click *OK* button when the *Country Selection* dialog appears.
6. Click *finish* button when the modem driver is inserted successfully. In order to complete the driver installation, you must restart the system.

Modem driver installation confirmation

After the modem driver is installed, you can check if the modem driver is installed properly.

1. Click the Start button, point to Settings, and then click Control Panel.
2. Double-click the Modem icon.

3. Check if the modem is attached to the communications port correctly.

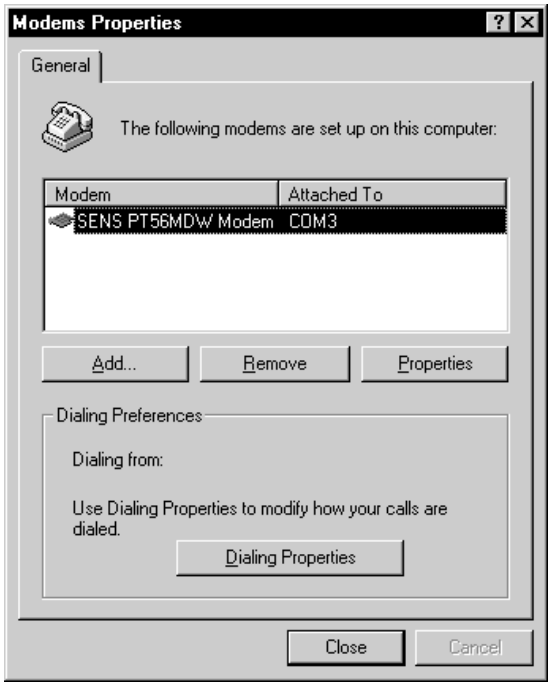


Figure 26. Modem driver confirmation

Installing the Modem Driver in Windows 98 (Modem/LAN Module Driver)

You can install the modem driver as shown in the following.

The figures illustrated in this manual may not be identical to those on your system. The figures in this manual were developed using the SENS LT56IDW Modem Installation as reference.

Install the Modem Driver

Before you install the modem drivers, check if the *Serial Controller* under *Other devices* of *Device Manager* tab of Control Panel on Windows exists. If it exists, remove it first.

After that, install the modem driver according to the instructions below.

You can also install the modem driver by specifying the location of the directory that the modem driver is in when Windows 98 automatically detects the modem and shows the *Add New Hardware Wizard dialog*. But, it is easier to press the *Cancel* button at this time and follow the instructions below.

1. Insert the CD or floppy diskette that has the modem driver on it.
2. Click the *Start* button, and then click *Run*. Locate the directory that contains modem driver and run setup.exe. (In this manual, "D" refers to the CD-ROM drive.)

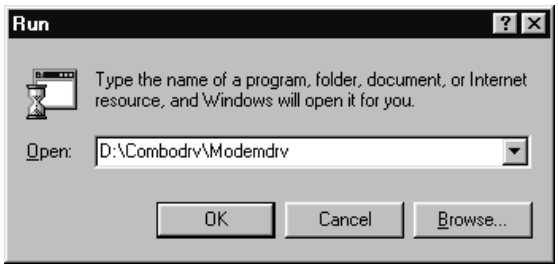


Figure 27. Run Dialog Box

3. Click *Next* button when the *Welcome* dialog appears.
4. Setup copies the driver files onto the system.
5. The *Setup Complete* dialog appears when the file copying process is finished. In order to complete the driver installation, you must restart the system. Check *Yes, I want to restart my computer now* and click *Finish* button.

Selecting a Country

You have to check if the country is selected correctly before you use the modem.

If the country is not selected correctly at the *I am in this country/region* of the *Dialing Properties* dialog, the modem may not work properly. So, you must check if the country you're calling from is selected appropriately and then use the modem. If your modem only supports "Domestic", you must select the country where you bought your notebook computer. And, if you use the modem in other countries, your modem may not work properly. If your modem supports "Worldwide", please check with your local distributor which countries can be supported by the SENS modem.

1. Click the *Start* button, point to *Settings*, and the click *Control Panel*.
2. Double-click the *Telephony* icon.
3. Go to the *My Locations* tab of *Dialing Properties* dialog. Select the country at the *I am in this country/region* list box.

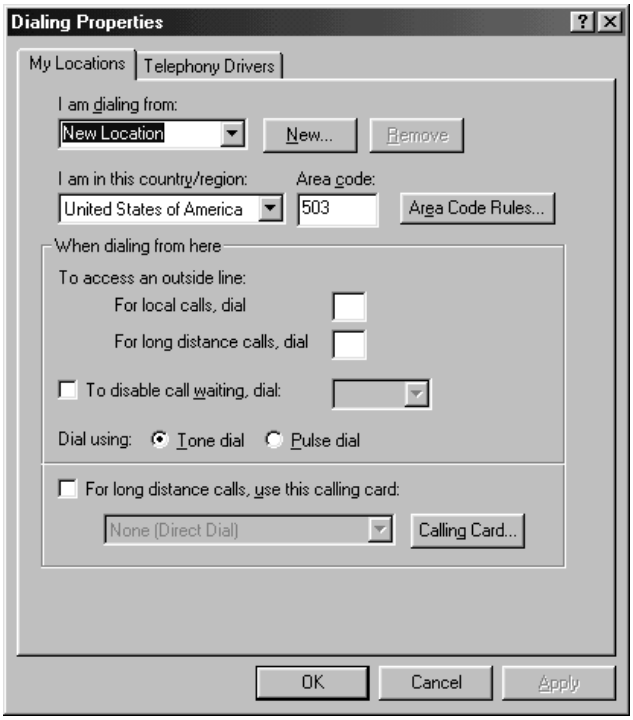


Figure 28. Dialing Properties in Windows 98

Confirming Installation of the Modem Driver

After the modem driver is installed, you can check if the modem driver is installed properly.

1. Click the *Start* button, point to *Settings*, and then click *Control Panel*.
2. Double-click *Modem* icon.
3. Go to D*iagnostic* tab when the *Modem Properties* dialog appears.
4. Select the port that the modem is installed in and then click the *More Info* button.

Figure 29. Testing the modem driver installation

The port where your modem is installed may be different from that of the above picture.

5. The modem is properly installed if you can see the following dialog.

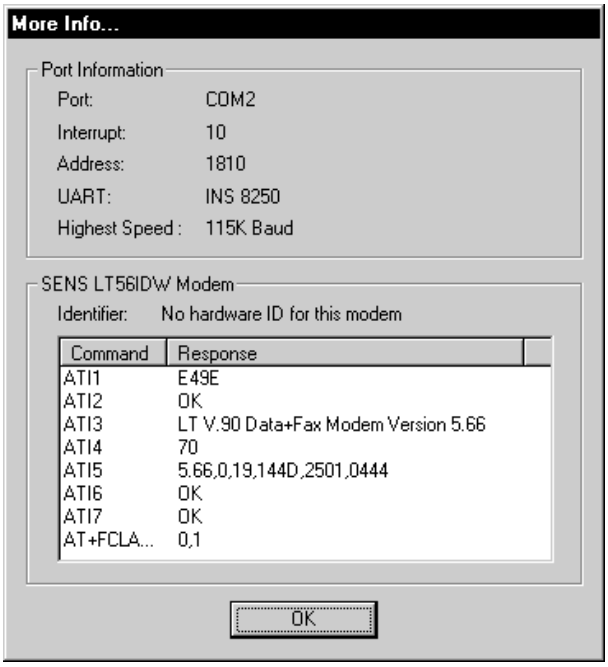


Figure 30. More Info Dialog Box

If the modem is not properly installed, install the driver again.

Installing Modem Driver in Windows NT 4.0 (Modem/LAN Module Driver)

You can install the modem driver as shown in the following.

The figures illustrated in this manual may not be identical as those on your system. The figures in this manual were developed using the *SENS LT56IDW Modem* installation as reference.

At the BIOS setup, *Installed* OS must be set as *"Other/NT4.0"*. When you install the driver or remove the driver, you must log in as *Administrator.*

In order to install your modem driver, you must remove the existing modem driver first.

Remove Existing Modem Driver

1. Insert the CD or floppy diskette that has the modem driver on it.
2. Click the *Start* button, and then click *Run*. Locate the directory that contain the modem driver and run SETUP.EXE. (In this manual, "D" refers to the CD-ROM drive.)

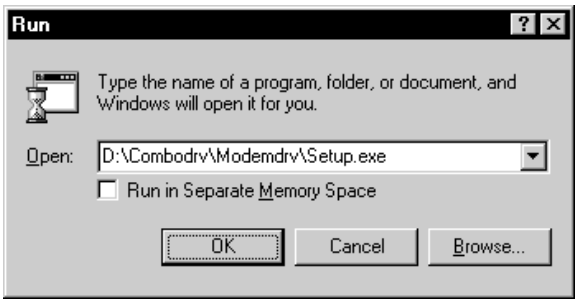


Figure 31. Run Dialog Box in Windows NT 4.0

3. Click the *Next* button when the *Modem Installation* dialog appears.
4. Select *Remove existing modem driver and component* and click the *Next* button when the *Select Components* dialog appears.
5. The *UnInstall Complete* dialog appears when the existing modem driver is removed successfully. In order to complete the driver removal, you must restart the system. Select *Yes, I want to restart my computer now* and click the *Finish* button.

Install the Modem Driver

1. Insert the CD or floppy diskette that has the modem driver on it.

2. Click the *Start* button, and then click *Run*. Locate the directory that contain the modem driver and run SETUP.EXE.
   (In this manual "D" refers to the CD-ROM drive.).

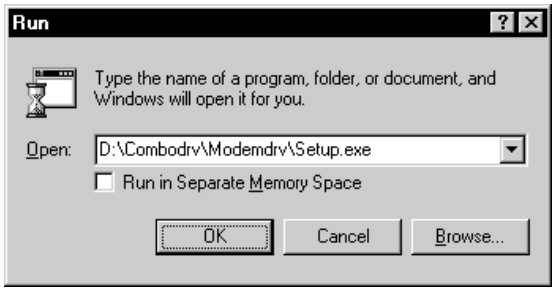


Figure 32. Locating the Modem driver in setup

3. Click the *Next* button when the *Modem Installation* dialog appears.
4. Select *Install new modem driver and components* and click the *Next* button when the *Select Components* dialog appears.
5. The *Setup Complete* dialog appears when the modem driver is installed successfully. In order to complete the driver installation, you must restart the system. Select *Yes, I want to restart my computer now* and click the *Finish* button.

Modem driver installation confirmation and country selection.

After the modem driver is installed, you can check if the modem driver is installed properly.

If the country is not selected correctly at th *I am in this country/region* of the *Dialing Properties* dialog, the modem may not work properly. So, you must check if the country you're calling from is selected appropriately and then use the modem. If your modem only supports *Domestic*, you must select the country where you bought your notebook computer. And, if you use the modem in other countries, your modem may not work properly. If your modem supports *Worldwide*, please check with your local distributor which countries can be supported by the SENS modem.

1. Click the *Start* button, point to *Settings*, and then click C*ontrol Panel*.
2. Double-click the *Modem* icon.
3. Check if the modem is attached to the communications port correctly and click the *Dialing Properties* button.

Figure 33. Modem Properties in Windows NT 4.0

4. At the *Dialing Properties* dialog, select the correct country at the *I am in~* list box.

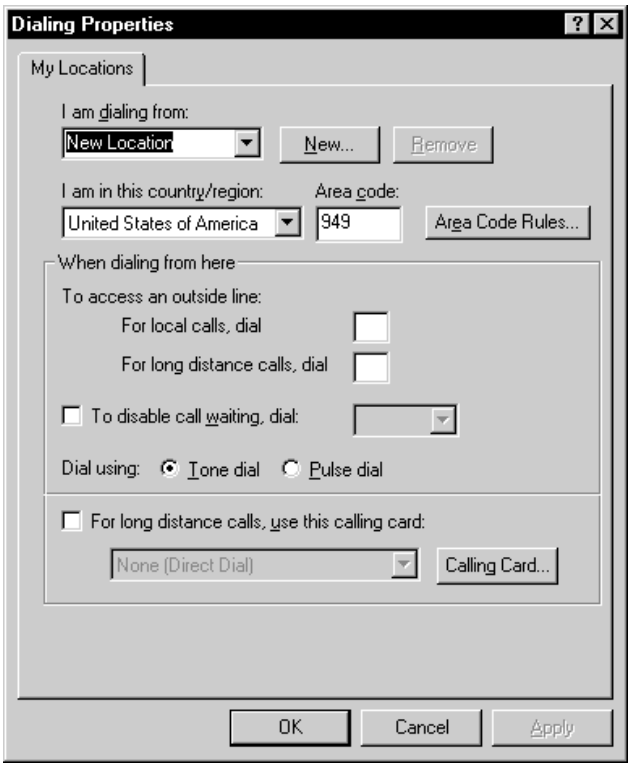


Figure 34. Dialing Properties in Windows NT 4.0

5. You must restart the system, for your settings to take effect.

Modem Commands

The SENS Modem includes the basic commands used by the Smart Modem of the Hayes Corporation . Some additional commands have been added to it to improve its capacity.

What are AT commands?

AT commands are the control commands of Fax modems developed by the Hayes Corporation. AT commands are the industry standard and necessary for any fax modem. It is used with the S-register to set the modem status.

Generally, AT commands are used by directly entering the command into any communications program, like Hyper terminal.

You can do the jobs below more easily by using AT commands.

- Calling up or hanging up the phone in order to communicate by Computer modem
- Choosing a modem in order to make the most efficient communication status.

But, as the communication programs are becoming more efficient and more intelligent nowadays, users do not have to know all the AT commands. Only a few basic commands are enough for computer communications.

Before Using AT Commands

AT commands can be used by entering them into terminal-based communication programs directly. (Hyper terminal, CrossTalk, Procomm, etc.)

CompuServe, America On-line applications are not terminal-based communication programs, but they are the communication programs based on a Graphic environment. This kind of program can initiate the modem setting by entering AT commands in a menu having a modem initialization command.

What you have to know before using AT commands is that there are two kinds of modes when you use it.

Command mode:

If you turn on your computer and start communication by a communication program, you can see a prompt on the terminal screen. Under such conditions, you can use AT commands like calling, etc.

DATA Mode

In command mode, you can call by using AT commands and communicate with others by connecting to other modems. You can call this status Data mode or On-line mode. In data mode, You can't use any AT commands except the +++ command, which has +++ at the head.

If you stop communication and disconnect the phone, the Fax modem will run in command mode again.

Using Command Mode during Communications

Sometimes, you have to use AT command while you're communicating with others via modem. In this case, you can use +++ command for AT command without hanging up your telephone. Pressing '+' three times makes fax mode change to command mode. Of course, the telephone is not disconnected. (Don't enter *Enter* key after input +++)

Connection may be lost depending on the server.

If you want return to Data mode from command mode, you only have to input ATO and press the *Enter* key to start the communications again.

The mode can not be transferred from the command mode to data mode depending on the server.

Using AT commands

AT commands can be used in the following way. There's no difference between capital letters and small letters, and all commands should include 'AT' as a prefix except ones, which include 'A/' instead.

Also, Carriage Return saved in the S3 register should be entered in order to sign the end of the command.

	AT command	Press *Enter* key
Example:	ATDT 123-4567	Press *Enter* and the modem dials to 123-4567

Display the result value

After entering AT commands, the result value is displayed on the screen.

The result value can be displayed during communication. Generally, the result will be *OK*. According to the ATV command, the result can be displayed as Words or numeral letters. (ATV0 : Display as numeral letters, ATV1: Display as English words)

Basic AT Commands

A/	Repeats the previous command in the buffer
ATA	Responds manually to incoming RING signals
+++	Switches from on-line mode to command mode
ATO	Switches from command mode to on-line mode
ATEn	Echo control
E0	Disables echoing of the commands to the screen
E1	Enables echoing of the commands to the screen
ATDT phone number	Touch tone dial
ATDP phone number	Pulse dial
ATHn	Hook control
H0	On-Hook (same as hang-up)
H1	Off-Hook (same as hold-on)
ATLn	Modem speaker loudness control
L0~1	Low volume
L2	Medium volume
L3	High volume
ATMn	Modem speaker control
M0	Disables modem speaker
M1	Enables only when in connection procedure
M2	Enables always
M3	Enables until carrier has been detected after connection
ATS0=n	Sets S0 register value (n range : 0~255). Sets the number of incoming ring signals before answering. Modem responds after ringing as many

times as specified in n value. If the value of n is '0', ATA command should be entered for auto answer

ATS0? Displays S0 register value on the terminal

ATX3 Dials after waiting for specified time

ATX4 Dials after dial tone is detected

ATZ Initializes modem

AT&F Loads the factory default configuration (profile)

AT&V Shows current configuration

AT&W Saves user profile

AT&Zn=x Stores the dial string in modem memory (n=0~3, x=phone number)
e.g.) AT&Z0=1235678

Automatically calls the stored phone number by using the following command.

ATDTS0	Recalls the stored phone number as AT&Z0 by tone dial
ATDPS0	Recalls the stored phone number as AT&Z0 by pulse dial

AT+MS=X Sets protocol for modem connection

(X=V90, V34)

AT+MS=V90 (default setting)

Try to connect with V.90 (max 56 Kbps)

AT+MS=V34

Try to connect with V.34 (max 33.6 Kbps)

Using the LAN

Intel PRO/100+ Adapter

Ideal for customers who want basic 10/100 connectivity. Delivers industry-leading performance through Intel's latest 82559 chip design. Common drivers and Intel's PROSet utility enable widespread compatibility and ease of installation.

Installing the LAN Driver in Windows 98

You can install the LAN driver as shown in the following.

Install the LAN Driver

Windows 98 has its own Intel(R) PRO/100+ PCI adapter driver, but install the LAN driver according to the instructions below.

1. From the *Control Panel*, double-click the *System* icon.
2. Click the *Device Manager* tab.
3. Double-click *Other Devices* or *Network Adapters* in the list area.

4. Double-click a *PCI Ethernet Controller*(or *Intel(R) PRO/100+ PCI adapter*).

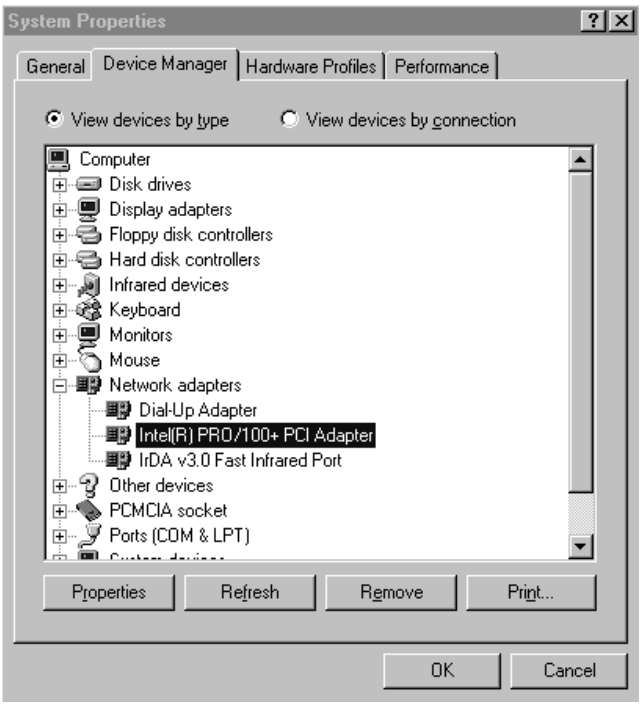


Figure 35. Installing LAN driver

5. Click the *Driver* tab, then click *Update Driver*.

6. Click *Next* at the *Update Device Driver Wizard* .

7. Select "*Display a list of all the drivers in a specific location..."* and click *Next*.

8. Click Disk and select *Have Disk.*

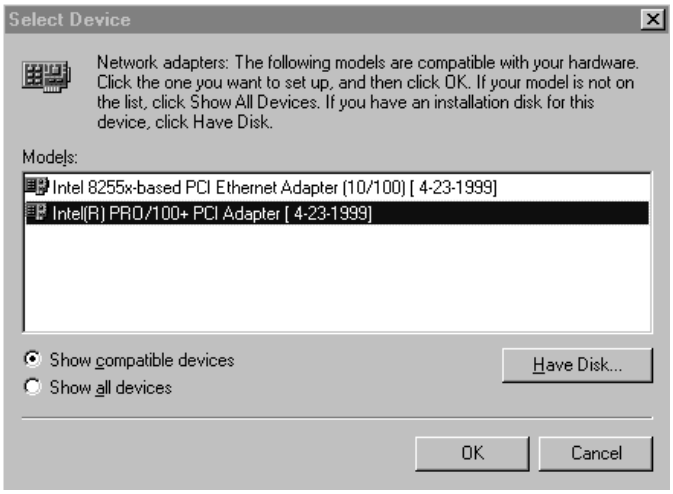

Select Device
Network adapters: The following models are compatible with your hardware. Click the one you want to set up, and then click OK. If your model is not on the list, click Show All Devices. If you have an installation disk for this device, click Have Disk.
Models:
Intel 8255x-based PCI Ethernet Adapter (10/100) [4-23-1999]
Intel(R) PRO/100+ PCI Adapter [4-23-1999]
Show compatible devices
Show all devices
Have Disk...
OK
Cancel

Figure 36. Select Have Disk

9. Insert the Intel PRO/100+ adapter disk or System Software CD and select *Specify a location*, then enter the appropriate drive for your disk media (A:, D:, etc.), and Click *OK*.

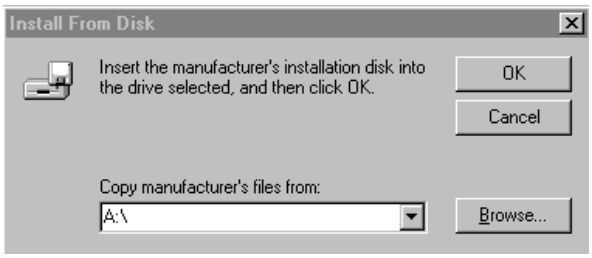


Figure 37. Select driver location

10. The Update Wizard displays the message that it has found the driver and select *Intel(R) PRO/100+ PCI Adapter*, then Click *OK*.

11. From the Update Device Driver Wizard, Click *Next*.

If a dialog box displays file not found message, enter the driver directory, and click *OK*.

12. From the Update Wizard, Click Finish.
13. Restart your computer when prompted.

Configuring Network Environment

1. If you complete installing Network Adapter driver, from the *control panel*, double-click the *Network* icon.
2. Click *Network Configuration* tab, then ensure that *Intel(R) PRO/100+ PCI Adapter* is installed.

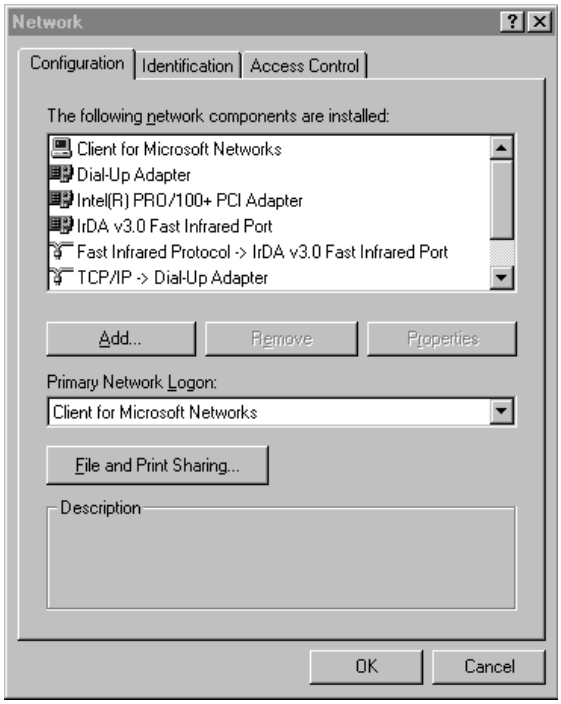


Figure 38. configuring Network Environment

3. Select *TCP/IP->Intel(R) PRO/100+ PCI Adapter* in the The following network components are installed list, and click *Properties*.
4. From the TCP/IP Properties, click the *IP Address* tab. Select *Specify an IP address* and then enter your IP address and the appropriate subnet mask. If you use DHCP server, select *Obtain an IP address automatically*.

5. Click the *Gateway* tab, then enter gateway address in the *New gateway* and Click *Add*. If you use DHCP server, this process is not needed.
6. Click the *DNS Configuration* tab, then select *Enable DNS*, and enter the host name in the *Host*, domain name in the *Domain* and DNS server address in the *DNS server Search Order*. Click *Add*. If you use DHCP server, this process i not needed.
7. If you finish the TCP/IP setup, click *OK*.
8. From the *Network* dialog box, click *Add*.
9. From the *Select Network Component type* dialog box, select protocol and then Click *Add*.
10. From the *Select Network Protocol* dialog box, select Microsoft in the *Manufactures* list and then select *IPX/SPX-compatible Protocol*. Click *OK*.
11. Repeat 8 and 9. Select Microsoft in the *Manufacturers* list, and then select *NetBEUI*. Click *OK*.
12. If you finish the network setup, from *Network* dialog box, click *OK*.
13. Restart your computer.

Using System Setup

The System Setup program enables you to configure your computer hardware and set security and power-savings options. The settings you choose are stored in battery-maintained CMOS memory that saves the information even when the computer's power is turned off. When your computer is turned back on, it is configured with the values found in this memory.

Run System Setup if you get a message prompting you to run the program. You may also want to run System Setup, particularly the first time you use your computer, to set the time and date, use security or power-management features, or alter the settings of other features.

Your computer's version of System Setup may not include all the fields listed here or may include additional fields. Field names and order of appearance can vary according to the version of the BIOS (basic input/output system) on your computer.

You can use the configuration listing at the back of this manual to record information specific to your computer. (See "Recording the Computer Hardware Configuration" on page 131.) Fill it out as you complete your System Setup configuration. This list helps you describe your computer if you must contact your authorised reseller for service or product information.

Starting System Setup

To start System Setup, turn on your computer and then press <F2> when prompted. The System Setup screen appears.

The top of the System Setup screen has a menu bar with the selections listed in Table 6.

Table 6. System Setup Menus

Menu	Function
Main	Changes the basic system configuration.
Advanced	Configures advanced features on your computer.

Security	Enables security features, including passwords and backup and virus-check reminders.
Power	Configures power-management features.
Boot	Specifies the order of boot devices and configures boot features.
Exit	Specifies how to exit System Setup.

To open a menu, use the left or right arrow keys to select the menu name and then press <Enter>.

Table 7 lists the keys you can use to navigate through System Setup.

Table 7. System Setup Navigation Keys

Navigation Key	Alternate Key	Function
<F1>	<Alt+H>	Displays the General Help window.
<Esc>		Exits the current menu.
<Left Arrow> and <Right Arrow> keys	Keypad arrow keys	Select a different menu. Pressing <ESC> at the Main menu brings you to the Exit menu.
<Up Arrow> and <Down Arrow> keys	Keypad arrow keys	Move the cursor up and down between fields.
<Tab>		Moves the cursor forward through the cells for a highlighted field. If the field has only one cell, the <Tab> key moves the cursor down to the next field.
<Tab+Shift>		Moves the cursor backward through the cells for a highlighted field. If the field has only one cell, the <Tab+Shift> key combination moves the cursor up to the previous field.
<Home>	<PgUp>	Moves the cursor to the field at the top of the window.
<End>	<PgDn>	Moves the cursor to the field at the bottom of the window.
<F5>	<->	Scrolls backwards through the options for the highlighted field.

<F6>	<+> or <Space>	Scrolls forward through the options for the highlighted field.
<F9>		Sets the parameters for the current menu to their default values.
<F10>		Sets the parameters for the current menu to their previous values.
<Enter>		Executes commands or opens a submenu.

A pointer symbol appearing to the left of a field indicates that you can open a submenu from this field. A submenu contains additional options for a field. To open a submenu, highlight the field and press <Enter>. Use the same keys to enter values and move from field to field within submenus as you use within menus.

When you highlight a field, information about the field appears on the right side of the screen. System Setup also provides a General Help screen that can be opened from any menu by pressing <F1> or <Alt+H>. The General Help screen lists the navigation keys with their corresponding alternates and functions.

When a scroll bar appears to the right of a help window, more information is available than can be displayed in the window. Use the <PgUp> and <PgDn> keys or the <Up Arrow> and <Down Arrow> keys to scroll through the entire help document. Press <Home> to display the first page, or press <End> to go to the last page. To exit the help window, press <Enter> or <Esc>.

If your computer will not boot after you have changed settings in System Setup and exited the program, reboot and press <F2> to reenter System Setup. Once in System Setup, you can try to change the values that caused your computer boot to fail. If the problem persists, press <F9> to load the default values.

Main Menu

When you open System Setup, the Main menu appears. You can make changes to your computer's basic system configuration from this menu. The fields displayed in this menu are described below.

System Time: Sets your computer to the time that you specify, usually the current time. Enter the hour, minute, and second in the format *hh:mm:ss.* Use a 24-hour clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers.

System Date: Sets your computer to the date that you specify, usually the current date. Enter the month, day, and year in the format*mm:dd:yyyy*. Use the tab key to move between the month, day, and year cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers. This field supports year dates of 2000 and beyond.

Legacy Diskette A: Specifies a drive type for floppy drive A. *1.44 MB, 3 1/ 2"(*default*)* floppy disk can be used.

Primary Master and **Secondary Master:** Your computer can support two IDE drives. The Main menu contains two IDE adapter fields to configure these drives. *Primary Master* defines the hard drive installed in the computer. *Secondary Master* defines the CD-ROM and DVD-ROM drives or Removable drives.

To configure a replacement or upgrade hard drive, move the cursor to select the *Primary Master* field in the System Setup Main menu, and then press the<Enter> key. The submenu appears.

Normally, you can use the *Auto* option of the *Type* field in the submenu to automatically set the values for the other fields in the submenu. Manually set the other fields in this submenu only if the drive you have installed in your computer is not recognized by System Setup.

Set the Auto option of the Type field in the Secondary Master submenu to enable the system to boot from Bootable CD-ROMs, you will also need to check the boot device priority field and Bootable CD check field.

After you make your selections from this submenu, press the <Esc> key to exit back to the Main menu.

Before attempting to configure a hard drive, make sure you have the configuration information supplied by the manufacturer of the hard drive. Incorrect drive settings can cause your computer to malfunction.

The Primary and Secondary Master fields calls up a submenu. The following fields are found in the submenu:

Type: Configures the hard drive type. Normally, select *Auto* at this field to have your computer attempt to automatically detect the drive type and set the values for the remaining fields in this submenu manually, specify *User*. Manually enter the number of cylinders, heads, sectors per track, and write precompensation for your drive. Refer to your drive's user documentation or look on the drive to obtain this information.

If no drive is installed or if you are removing a drive and not replacing it, select *None*.

***Maximum Capacity*:** Shows the maximum capacity of the drive. This field is for reference only.

Multi-Sector Transfers: Sets the number of sectors per block to the highest number supported by the drive. Configuration options are *Disabled, 2 Sectors, 4 Sectors, 8 Sectors,* and *16 Sectors.*

LBA Mode Control: Enables or disables 28-bit addressing of the hard drive, without regard for cylinders, heads, and sectors. Note that enabling this field may decrease the access speed of the hard drive.

32 Bit I/O: Enables or disables 32-Bit I/O (input/output). When *Enabled* (default), your hard drive can work with applications with 32-bit input and output. If the field is *Disabled*, your computer works with 16-bit input and output and has lower performance.

***Transfer Mode*:** Selects the method for transferring data between the hard drive and system memory. Refer to your drive's user documentation to specify the correct option for this field. Options are *Standard, Fast PIO 1, Fast PIO 2, Fast PIO 3,* and *Fast PIO 4.*

***Ultra DMA Mode**:* Enables the hard drive to use ultra DMA (direct memory access) transfer mode to transfer data between the drive and system memory. Options are *Mode 0, Mode 1, Mode 2,* and *Disabled.*

CPU Type: Displays the CPU type detected during start up.

CPU Speed: Displays the CPU speed detected during start up.

System Memory: Displays the amount of conventional memory detected by your computer during startup. This field is for reference only.

Extended Memory: Displays the amount of extended memory detected by your computer during startup. This field is for reference only.

BIOS Version: Displays the BIOS version of your system.

Micom Version: Displays the Firmware version of your system.

Advanced Menu

Selecting *Advanced* from the menu bar displays the Advanced menu.

Installed O/S: Select the operating system installed on your system which you will use most commonly. An incorrect setting can cause the unexpected system behavior.

PS/2 Mouse: *Disabled* prevents both the touchpad and external PS/2 port from functioning. *Single mouse* (default) enables the external PS/2 port or the touchpad, and external PS/2 port has proirity. *Dual Mouse* allows the use of both the touchpad and PS/2 port.

Screen Expansion: Enables or disables the Screen Expansion mode. If you set this field to Enabled, the system expands VGA mode (DOS mode or 640x480 Graphic mode) to use the full size of the LCD. If this field is Disabled VGA mode appears as a 640x480 box in the LCD.

TV Out Mode: Select TV standard such as *NTSC*(default), *PAL* .

Display Configuration: Enable you to set the default display. Options are *LCD*, *CRT* and *Both*. Choose LCD to use the built-in display only, CRT to use an external monitor only or BOTH to have both built-in and external displays used as the dafault. If you select CRT and no external monitor is attached you will see no display until you attach the external monitor. The default is LCD.

I/O Device Configuration: Opens the *I/O Device Configuration* submenu if you press <Enter> when this field is highlighted. If you attempt to set two ports to the same settings, the fields will be marked with asterisks.

The submenu contains these fields:

Serial port: Configures serial port. The options for this field are *Enabled* (default), and *Disabled*. If you set this field to *Enabled*, you can set the *Base I/O Address* field to *3F8 IRQ4* (default), *2F8 IRQ3, 3E8 IRQ4*, or *2E8 IRQ3*. When the field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Infrared port: Configures the infrared port. The options for this field are *Enabled*, and *Disabled* (default). If you set this field to *Enabled*, you can set the *Base I/O Address* field and the *Mode* field and the *Mode* field. Settings for the *Base I/O Address* are *3F8 IRQ4, 2F8 IRQ3* (default), *3E8 IRQ4*, or *2E8 IRQ3*. *Mode FIR* (fast infrared) enables you to set the *DMA channel* to 3 or 1.

When the *Infrared port* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Parallel port: Configures the parallel port. The options for this field are *Enabled* (default), and *Disabled*. If you set this field to *Enabled*, you can set

the *Mode* field and the *Base I/O Address* field. Settings for the *Base I/O Address* are *378 IRQ7*(default), *378 IRQ5*, *278 IRQ7*, *278 IRO5*, *3RC IRQ7*, and *3RC IRQ5*. Settings for the *Mode* are *Output only*, *Bi-directional*, *EPP* (enhanced parallel port), and *ECP* (extended capabilities port). Selecting the ECP setting enables you to set the DMA Channel to 1, 2, or 3.

When the *Parallel port* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Floppy disk controller: Configures the floppy disk controller. The options for this field are *Enabled* (default), and *Disabled*. When the *Floppy disk controller* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller.

Local Bus IDE adapter: Enables the integrated IDE local bus adapters. Options are *Enabled* (default) and *Disabled*.

Large Disk Access Mode: Enables your computer's operating system to work with drives larger than 540 MB. Choose *DOS* (default) for Microsoft operating systems. Choose *Other* for any other operating systems.

Security Menu

Selecting *Security* from the menu bar displays the Security menu. Your computer's advanced security system allows you to set two different passwords to prevent unauthorized access to system resources, data, and System Setup. From the Security menu, you can enable a boot password, disk access, a system backup reminder, and a virus check reminder.

Security fields marked with an asterisk (*) can only be changed if you start System Setup with a system supervisor password or if no passwords are in effect. You cannot access these fields with a user password.

Set User Password: Enables you to set a user password to control access to the system at boot. See "Creating a Password" on page 80 for instructions on setting a password.The user password allows restricted access to the System Setup Security menu; the user has access only to changing his own password and to enabling or disabling *Password on boot*. A supervisor password must be set before a user password can be set.

Set Supervisor Password:* Enables you to set the supervisor password to control access to the System Setup utility. See ”Creating a Password” on page 80 for instructions on setting a password.

Password on boot: Determines whether the computer prompts for a password when starting up. The options are *Enabled* and *Disabled*. A supervisor password must be set before you can enable this option.

Fixed disk boot sector:* Enables you to write-protect the hard drive boot sector to protect against viruses and alterations. Only a user with the supervisor password can access this field. The options for this field are *Normal* (default) and *Write Protect.*

Processor Serial Number: Controls detection of the processor serial number.

Power Menu

The Power menu of System Setup allows you to enable and adjust your computer’s sophisticated power-saving features. Enabling these features extends the life of the battery.

If your computer shipped with Windows 98 installed, the Power Management works with the settings in the Power Management option of Control Panel. But if your computer has DOS, Windows 95 or Windows NT 4.0, the Power Management works with the settings in System Setup.

Intel(R) Speedstep(TM): When CPU supports Speedstep(TM), this field will appear on this menu. The main idea of Speedstep is to save the power. The CPU supported by the Speedstep adjusts its speed according to the power supply method, such as by the battery or by the AC adapter. If this field is set to *Performance*, it reduces the battery usage time by the high CPU speed, or set to *Battery* increases the battery usage time by the slower CPU speed. And when it is set to *Automatic*, the system adjusts its speed according to the power supply method, such as by the battery or by the AC adapter. *Disabled* means that this function does not activated.

Power Savings: Enables and disables Maximum Performance mode. The options are *Maximum Performance*, *Maximum Power Saving*(default), *Customized* and *Disabled*. If you set this field to *Maximum Performance*, the microprocessor and hard drive run at full speed, unless affected by other power-savings settings. If you set this field to *Maximum Power Saving*, the microprocessor and the hard drive run

at slow speed, when there is no user input or device activity. Choose *Customized* to alter these settings and *Disabled* to turn off the Power management function.

Idle Mode: Turns on or off the idle mode power savings. *On* slows down the CPU when the system is not busy.

Suspend Time out: Sets the period of computer inactivity from Suspend that must pass before your computer automatically goes into rest mode. When the rest timeout expires, your computer goes to the rest mode according to Suspend Mode.

Suspend Mode: Specifies the type of rest mode your computer enters:

- *Save to RAM:* Saves power by turning off the microprocessor and all devices except system memory and controller, video memory and controller.
- *Save To Disk* (default)*:* Provides the greatest power-saving capabilities by essentially turning off your computer. In the save to disk mode, all system logic (except for your computer wakeup circuitry and battery charger) is turned off. During save to disk mode, the system and video memory are saved to the hard drive and are restored when your computer resumes from rest.

  When the computer enters save to disk mode, it will not resume normal operation at a specified time no matter how the *Resume On Time* field is set.

Resume On Modem Ring: Enables the computer to resume operation from rest mode in the event of modem communication. The computer will resume only if the *Suspend Mode* field is set to *Save to RAM*, not *Save To Disk*. The default setting is *Off*. Windows 98 does not use this item.

Resume On Time: Enables the computer to resume operation from rest mode at a scheduled time. The computer will resume only if the*Suspend Mode* field is set to *Save to RAM*, not *Save To Disk*. If you set this field to *On*, you must set the *Resume Time* field as well. The default setting is *Off*. Windows 98 does not use this feature.

Resume Time: Specifies the time for your computer to automatically resume from rest mode. Enter two-digit numbers to indicate the hour, minutes, and seconds in the format *hh:mm:ss*. Use a 24-hour clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers. You must set this option if you enable *Resume On Time.*

Smart Battery Calibration: Enables you to discharge the system battery completely for a more accurate battery level detection. This option only works with the smart battery if the AC Adapter is not plugged in.

Calibration reminder:* Enables the computer to prompt you to start the battery calibration . The prompt appears each time you start your computer or reboot until you respond with *Y* (yes). The options for this field are:

- *Monthly*: When you start your computer for the first time each month, the prompt appears.
- *Disabled*: The prompt never appears. This is the default setting.

Boot Menu

The Boot menu enables you to select a boot device and set boot options.

Logo Screen: Enables (default) or Disables the display of the boot time logo. If you select *Disabled*, the diagnostic POST screen is displayed during boot

Summary screen: Displays the system configuration when the computer starts. The options are *Enabled* and *Disabled*(default).

Boot Device Priority: Enables you to select the order in which the computer attempts to boot from different devices. The field has four options: *Diskette Drive,Removable Devices, Hard Drive,* and *ATAPI CD/DVD-ROM Drive*.

To choose a device as the first, second, or third boot device:

1. Press <Enter> at the *Boot Device Priority* field
2. Highlight the option with the <Up Arrow> or <Down Arrow> key.
3. Use <+>, <-> keys until the option moves up or down in the list of options and the number *1, 2,* 3, or *4* appears beside the option.
4. Press <Esc> to return to the Boot menu.

The default setting is *1.Diskette Drive , 2.Removable Devices, 3.Hard Drive, 4.ATAPI CD/DVD-ROM Drive.*

If you want to start the system using a bootable CD, change the ATAPI CD-ROM Drive to be the first priority and make sure that Auto is set in the Type field of the Secondary Master Submenu at Main page.

Exit Menu

Select *Exit* or press <Exc> from the menu bar to display the Exit menu.

Pressing <Esc> does not exit this menu. You must select one of the options from this menu or a menu bar item to exit this menu.

Exit Saving Changes Enables you to exit System Setup and saves your changes. When you select this item and press <Enter>, a message appears asking you if you want to save your changes and exit System Setup. Choose *Yes* and press <Enter> to save your changes and exit. Choose *No* and press <Enter> to remain in System Setup.

Exit Discarding Changes: Enables you to exit System Setup without saving your changes. When you select this item and press <Enter> a message appears asking you if you want to save changes before exiting. Choose *No* and press <Enter> to exit without saving changes. Choose *Yes* and press <Enter> to save changes and exit.

Load Setup Defaults: Loads the default values for all System Setup parameters. When you select this option and press <Enter>, a message appears asking if you want to load the default configuration. Choose *Yes* and press <Enter> to load default settings and remain in System Setup. Choos *No* and press <Enter> to retain your changes and remain in System Setup.

Discard Changes: Enables you to discard the selections you have made and restore the values you previously saved. When you select this option and press <Enter>, a message appears asking if you want to load the previous configuration. Choose *Yes* and press <Enter> to load the previous settings and remain in System Setup. Choose *No* and press <Enter> to retain your changes and remain in System Setup.

Save Changes: Saves your selections without exiting System Setup. When you select this option and press <Enter>, a message appears asking if you want to save configuration changes. Choose *Yes* and press <Enter> to save changes and remain in System Setup. Choose *No* and press <Enter> to discard changes and remain in System Setup.

Using System Security

This section describes the security options provided with your computer.

System Passwords

The computer provides two levels of password security: administrative-level (supervisor) and user-level (user). Either password prevents unauthorized acces to the computer. The supervisor password enables full access to all System Setup fields. The user password enables full access to only the *Set User Password* and *Password on boot* security fields and read access to all other System Setup fields. (See "Security Menu" on page 75 for a complete list of System Setup security fields.)

If multiple users have access to the computer (such as in a network environment), a supervisor password can prevent unauthorized access to certain security options.

Choose the type of password security that is appropriate for your work. If you want to set a user password, you must set a supervisor password first.

Creating a Password

To create a password:

1. At startup, press <F2> to open System Setup.
2. Use the <Right Arrow> key to select the Security menu.
3. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password.*
4. Press <Enter>. The Set Password dialog box appears.
5. Type a password of up to seven characters. You can enter letters or numbers, but you cannot use the function keys, such as <Shift>. Your computer does not distinguish between capitalized and lowercase letters in your password. As you type the password, the cursor moves but your password does not appear on the screen.

6. Press <Enter> after you have typed your password. The computer prompts you to reenter your password for verification.
7. Type your password again and press <Enter>. A message appears telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
8. Press <Esc> to go to the Exit menu.
9. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

Deleting a Password

To delete the password:

1. At startup, press <F2> to open System Setup.
2. Type your password when prompted and press <Enter>.
3. Use the <Right Arrow> key to select the Security menu.
4. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password.*
5. Press <Enter>. The computer prompts you to enter the current password.
6. Press <Enter>. The computer prompts you to enter a password. Do not type anything.
7. Press <Enter>. The computer prompts you to re-enter the password. Do not type anything.
8. Press <Enter>. A message appears telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
9. Press <Esc> to go to the Exit menu.
10. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

Requiring a Boot Password

After you create a supervisor or user password, you can enable the computer to prompt for a password each time it starts.

To enable the prompt, select the option *Enabled* in the *Password on boot* field in System Setup. For more information about the *Password on boot* field, see “Security Menu” on page 75.

Locking the Keyboard

The keyboard lock enables you to protect your system when you walk away fro it for a time. To use the keyboard lock, you must first enable a password through System Setup. (See ”Creating a Password” on page 80 for instructions.To lock your keyboard, press <Fn+F7>. To unlock your keyboard, type your password and press <Enter>.

Using Power Management Options

Your computer includes power-management options that can help the battery charge last longer and extend the life of the battery, LCD panel, and other components. Power-management options slow down or shut off system components when the components are not being used.

Power management may slow down system performance. Your computer runs fastest with the power cord attached, when power management is disabled.

Windows 98 has two Power Management strategies:

- APM (Advanced Power Management) mode: Under APM mode, Windows 98 Power management works with the settings in the Power Management option on the Control Panel except for rest mode.
- ACPI (Advanced Configuration and Power Management Interface) mode: Under the ACPI mode, All the settings in System Setup have no effect on Windows 98. Battery low and battery very low warnings are configured using the Power Management option.

  If you want to use Hibernation function in ACPI mode (Windows 98), then click Start > Settings > Control Panel and double click Power Management icon. Select *Hibernate* on the *When I press the sleep button on my computer field* in *Advanced* tap. Then you can use the power button for activating the hibernation function.

  If you want to shut down your computer by pressing the power button, see "ACPI(Advanced Configuration and Power Interface) mode" on page 8.

If your computer uses DOS or Windows 95, Power Management works with the settings in System Setup.

If your computer shipped from the factory with Windows NT installed, PowerProfiler software was included to support power management.

Maximum Power Saving Mode

For maximum power saving mode, the microprocessor may run at slow speed to conserve power. To enable this mode , set the *Idle Mode* field in System Setup to *enabled.*

Suspend Mode

The *Suspend Timeout* field in System Setup enables you to specify the time period the computer can remain idle (no user input or device activity) before the computer enters rest mode. You can disable this option by selecting *Off*, or you can specify a *Suspend Timeout* delay time of from 5 to 60 minutes.

The *Suspend Mode* field in System Setup defines what type of Rest mode your computer enters:

- *Save to RAM*: Saves power by turning off the microprocessor and all devices except system memory and controller, video memory and controller.
- *Save To Disk*: This mode provides the greatest power-saving capabilities by essentially turning off your computer. In this mode, all system logic (except for your computer wakeup circuitry and battery charger) is turned off. During save to disk mode, the DRAM and video memory are saved to the hard drive and are restored when your computer resumes operation.

You can press <Fn+F11/Rest> to manually place your computer into Suspend mode.

When you use the <Fn+F11/Rest> key combination, your computer may postpone entering Suspend mode during a critical operation, such as reading from or writing to the hard drive.

To resume to full-power mode, press the power button.

Once all devices return to full-power mode, all active software applications and system states are restored to exactly how they were before your computer entered rest mode.

When your computer enters or resumes from save to disk mode, screens appear indicating system status. These status screens do not appear when the computer enters or resumes from power on suspend.

Suspend Mode Precautions

Observe the following precautions when using Suspend mode:

- Save all open files before you press <Fn+F11> to manually place your computer into Suspend mode.

- If you purchased a new hard drive, make sure that you create a save to disk partition equal to the amount of system memory plus the amount of video memory plus 2 MB before you enable save to disk mode. See "Creating a Save to Disk Partition" on page 87 for more information.
- Do not try to resume to full-power mode using battery power if the battery charge is low. If the battery charge is too low, the system may not be able to resume fully. Plug in the power cord if your computer cannot resume normal operation because of a low battery charge.

When your computer is in power on suspend or save to disk mode, do not connect or remove any devices (including PC Cards or memory modules) because you may damage the computer or resume to full power may fail. If a floppy disk is in the floppy drive, do not remove it or switch it with another disk. However, you can plug in the AC adapter if the resume to full power fails because of a low battery charge. When the computer is in save to disk mode, you can remove and replace the battery.

Using PowerProfiler

PowerProfiler enables you to set power-management options for computer shipped with Windows NT installed. This section could differ depend on your computer specification.

To open the PowerProfiler window, double-click the battery icon on the right corner of the Windows taskbar. If you click the icon with the right mouse button, a menu appears with an option to put the computer in Suspend mode.

Click the Standard tab in PowerProfiler to set timeouts for the LCD and the hard drive. You can also set power management to be enabled *Always*, *Battery Only*, or *Never*. The Advanced screen in PowerProfiler enables resume from rest options, and the Battery screen enables options to conserve battery life.

Keep the following in mind when using PowerProfiler:

- If you disable power management in PowerProfiler, the setting overrides any power-management settings in System Setup.
- If you enable LCD and hard drive timeouts in PowerProfiler, the LCD and hard drive turn off when the shortest timeout period in either program passes.

- If you disable the *Resume on Time* field in System Setup, the same field in PowerProfiler is also automatically disabled. An easy way to work with these two fields is to set the resume time to 0 in System Setup and set the actual resume time that you desire in PowerProfiler.

PowerProfiler maintains the accuracy of the system clock when the computer resumes from rest mode. If PowerProfiler is closed or removed from your hard drive, your system clock may not be accurate when your computer resumes from rest mode.

For more information on PowerProfiler, see the Help option in the PowerProfiler software.

Creating a Save to Disk Partition

The hard drive shipped in your computer has a Save to Disk Partition to store data from system and video memory during Save to Disk mode.

If you want to use a new hard drive to your system, you need to create a Save to Disk Partition area on the new hard drive.

See the below notes and cautions before partitioning your HDD;

- Back up data files of your old hard drive. Click Start > Program > Accessories > System Tools and start to Backup your data.
- If you do not intend to use Save to Disk mode, you do not need to create a Save to Disk Partition.
- For system boot with CD-ROM, under the Boot menu in System setup, set Bootable CD Check to Enabled and set Boot Device Priority ordered starting from [DVD/CD-ROM]. Use DVD Software CD in this process.
- Before you set partition and format HDD, set Fixed Disk Boot Sector to Normal in Security menu of System setup.

To create FDISK

1. Set the system boot with CD-ROM, press <F8> key to boot with “Safe mode command prompt only”.
2. Operate Fdisk.exe, type “A:\>fdisk” and press Enter.
3. When 'Do you wish to enable large disk support (Y/N)...?' shows, select Y and press Enter.
4. Select '1. Create DOS partition or Logical DOS Drive' field in [FDISK Options].
5. Select 'Create Primary DOS Partition' field in [Create DOS Partition or Logical DOS Drive] and press Enter to start creating 'Primary DOS Partition'.
6. ’Do you wish to use the maximum available size for a Primary DOS Partition and make the partition active (Y/N)...?' shows, then select N to divide HDD into several drives or using Save to Disk mode. If you select Y, it means you are not using Save to Disk Partition and use HDD sector as active DOS only.
7. Type the partition size in the blank of 'Enter partition size in Mbytes or percent of disk space (%) to create a Primary DOS Partition...:[ ]' and press Enter.

(HDD size) - (Save-To-Disk Partition + 5MB)
Eg.) Partition size for 6.4 GB HDD = 6250 - (140 + 5) = 6105

8. Finish the Fdisk by <Esc> key and press the power button to reboot the system.

To create PHDISK

1. Set the system boot with CD-ROM, press <F8> key to boot with "Command prompt only".
2. Operate Phdisk.exe as follows.
3. Type 'E:\sysutil>phdisk /c 143360 /p' and press Enter.
   143360 is calculated as below formula, and it could be different according to system memory.
   143360={system memory(64MB) + video memory(8MB) + extended memory(64MB) + buffer space(1MB)}x1024
4. Press any key to restart the system.

To format the HD

1. Boot system by CD-ROM.
2. Operate Format.exe, type 'A:/format c: /s' and press Enter.
3. Warning message saying all the data will be removed shows, type Y for 'Proceed with Format (Y/N)?' and press Enter.
4. Type the drive label and press Enter.

To install Windows 98 and each device drivers

Use *System Recovery CD* to install Windows 98 and *System Software CD* to install devices' drivers.

Restoring your Operating System and Original Applications and Drivers

Notebook computers that ship from the factory include *System Recover CD-ROM* and *System Software CD-ROM*, which contains a copy of the applications and drivers needed for computer's operating system.

In the unlikely event that programs on the computer hard drive become corrupted or are erased, you can use the *System Recovery CD-ROM* to reinstall your operating system and then *System Software CD-ROM* to reinstall your original applications and drivers.

Under the Boot menu in System Setup, set *Diskette Drive* as the first boot device and *CD-ROM Driv* as the second. (see "Using System Setup" on page 69 for information on setting options.)

See the documentation that accompanied your operating system for detailed information on installation and setup.

To (re)install your operating system (Windows 98/NT)

1. Turn your machine on.
2. During the Boot Sequence, press F2 to enter System Setup.
3. Insert the *System Recovery CD-ROM.*
4. Enter the Boot Menu and ensure that Bootable CD Check is Enabled.
5. Select the Boot Device Priority menu option, press Enter. Ensure that ATAPI CD-ROM Device is first on the list.
6. Press F10 to save and exit System Setup and confirm yes by pressing *ENTER.*
7. When the Recovery Menu appears, select number as you insist.
   1. Restore Manufacture's originally preinstalled.

2. Only Windows Setup
3. Exit to DOS Prompt.
Please note this will delete everything from your C: drive.

If you select No.2 to install OS only, then you will be asked to insert the *Microsoft Windows product key* label attached on the system.

To (re)install your original applications and drivers:

Use the *System Software CD-ROM* included in the packing. And follow the instruction in the CD cover.

Video Features and Configuration

Your computer includes a TFT LCD or active-matrix display. The capabilities of the screen plus the video drivers installed on the computer determine the quality of the image your LCD can display.

The following sections describe the display capabilities of your computer.

Resolution and Color Depth

The resolution of the LCD is the sharpness of the image it can display. Resolution is measured by the number of pixels (individual dots) displayed on the entire screen. In general, the more pixels the LCD can display, the better the image.

Your LCD screen is XGA. In XGA, the screen has a maximum display of 1024x768, about 800,000 pixels.

The number of colors the LCD can display is measured by how many bits the LCD uses to represent each pixel:

- 8-bit color can support 256 different colors.
- 16-bit color can support 64 K (65,536) colors.
- 24-bit color can support 16 M (16.8 million) colors.
- 32-bit color can support 16 M (16.8 million) colors.

24-bit color uses the RGB color model.

32-bit color uses the CMYK color model which gives better printed color matching.

The video mode capabilities and maximum colors supported in Windows 98, Windows NT 4.0, Windows 2000 are same in your computer and Table 8 shows video capabilities.

Table 8. Video Driver Capabilities

Resolution Supported with 8MB SGRAM (16MB SDRAM)	Number of Colors
640x480, 800x600, 1024x768, 1280x1024, 1600x1200	256
640x480, 800x600, 1024x768, 1280x1024, 1600x1200	65,536
640x480, 800x600, 1024x768, 1280x1024, (1600x1200)	16.8 million (24 bit)
640x480, 800x600, 1024x768, (1280x1024)	16.8 million (32 bit)

All these video modes can be displayed on an external monitor. However, if you disconnect an external monitor that was attached to your computer and then start the computer, the LCD may revert to a different resolution than the one you chose for the external monitor.

Configuring Display Features

The following sections describe how to configure the display settings on your computer.

Selecting a Monitor Type

When you attach an external monitor to your computer, Windows 98 automatically selects display settings for it (this feature is not available in Windows NT). If you wish, you can adjust the display settings by selecting a monitor type:

1. Click the *Start* button on the Windows 98 taskbar.
2. Select *Settings.*
3. Click *Control Panel.* The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.
6. Click the *Advanced* button. The Advanced Properties screen appears.
7. Click the *Monitor* tab.
8. Click the *Change* button. The *Update Device Driver Wizard* screen appears.
9. Click the *Next* button.

10. Select the *Display a list of all the drivers in a specific location, so you can select the driver you want* radio button and click the Next button.
11. Select the *Show all hardware* radio button.
12. Select a manufacturer and model setting that matches your external monitor. Your computer has an intelligent video chip set that automatically matches your LCD panel resolution and frequency when an external monitor is not present.
13. Click the *Next* button.
14. The *Update Device Driver Wizard* screen appears showing the driver location of the device you have selected. Click the Next button.
15. Follow any prompts that appear on the screen.

Changing Color Depth and Resolution

To change the colour depth and resolution of your LCD or external monitor:

1. Click the *Start* button on the Windows taskbar.
2. Select *Settings*.
3. Click *Control Panel.* The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.

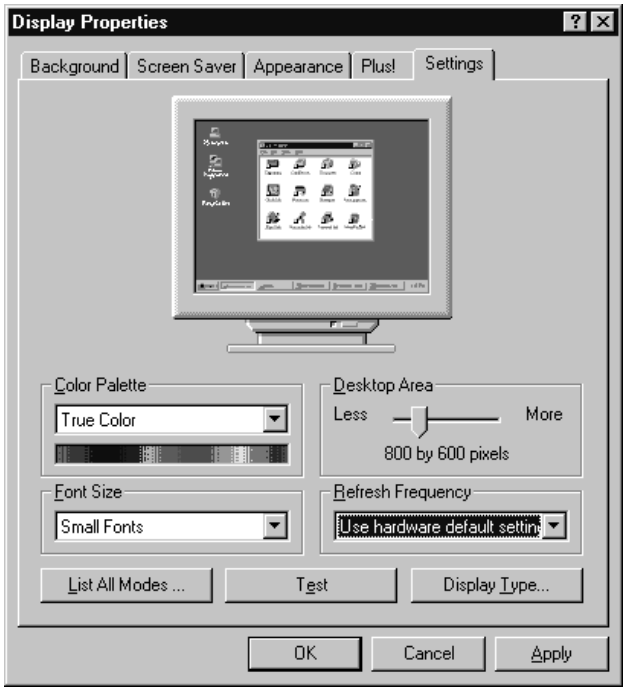


Figure 39. Display properties in Windows NT 4.0

6. To change the colour depth, click the arrow next to *Color palette* and select the colour depth you want.
7. To change the resolution, click and drag the knob under the *Screen area* until you select the resolution you want.
8. Click the OK button.
9. Follow the prompts that appear on the screen.

Changing the Video Driver

It is possible that you may want to update your video driver or that your installed video driver has become corrupt so that the display is unusable.

Windows 98:

1. Click on the *Start Button*. and the Start Menu appears.
2. Select *Settings* and click on *Control Panel*, double click on *Display*. The Display Properties window appears.
3. Select *Settings* tab.
4. Click the *Advanced* button. The properties screen for your currently installed video driver appears.
5. Select the *Adapter* menu.
6. Click the *Change* button. The Update Device Driver Wizard window appears.
7. Click the *Next* button.
8. Select *Display a list of all the drivers in a specific location, so you can select the driver you want*. Click the *Next* button.
9. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive. Click the *Browse* button and locate driver you want to install. Click the OK button.
10. Select the new driver in the *Select Device* screen and click the *Ok* button.
11. Click the *Next* button to install the new driver and follow any directions on the screen to finish setting the display properties.

Windows NT 4.0:

1. Log on to the computer as supervisor. The Invalid Display Settings window may appear.
2. Click on the *Start Button*. and the Start Menu appears.
3. Select *Settings* and click on *Control Panel*, double click on *Display*. The Display Properties window appears.
4. Select the *Settings* menu.
5. Click the *Display Type* button. The Display Type window appears.
6. Click the *Change* button. The Change Display window appears.
7. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the origianl factory driver insert the Restore CD-ROM into the CD-ROM drive. Enter the path to the directory where the

drivers are located or click the *Browse* button and locate driver you want to install. Click the OK button.

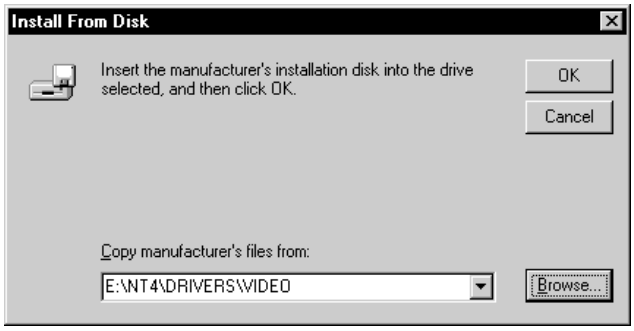


Figure 40. Enter location of the driver files

8. A line similar to the following line appears under the *Display* option: *S3. Savage IX*.
9. Click OK. The *Third-Party Drivers* warning window appears.
10. Click Yes. The driver is copied. A window appears telling you the driver has been successfully copied.
11. Click OK. Remove the disk from the floppy drive. Close the open windows on the screen.
12. Click Yes when prompted to restart the computer. As the computer restarts, select *Windows NT Workstation Version 4.00* as the operating system and press <Enter>.
13. Log on as supervisor. The Invalid Display Settings window appears.
14. Click the OK button. Click the Test button at the Display Properties window and follow any directions on the screen to finish setting the display properties.

Windows 2000

You can use two different method to install video driver.

1st Method;

1. Click on the *Start* button and the Start menu appears.
2. Select *Settings* and click on *Control Panel*, double click on *System*. The *System Properties* window appears.

3. Select *Hardware* menu. Click the *Device Manager* button. The *Device Manager* window appears.
4. Double click Video Controller, The properties screen for your currently installed video driver appears.
5. Click *Reinstall Driver* button. The *Upgrade Device Driver Wizard* window appears.
6. Click the *Next* button.
7. Select *Search for a suitable driver for my device*, then click the *Next* button.
8. Check *Specify a location.* Click the *Next* button.
9. Click the *Browse* button and locate driver you want to install. Click the *OK* button.
10. Click the *Next* button to install the new driver and follow any directions on the screen to finish the display properties setting.

2nd Method;

1. Click on the *Start* button and the Start menu appears.
2. Select *Settings* and click on *Control Panel,* double click on *System.* The *System Properties* window appears.
3. Select *Settings* tab.
4. Click the *Advanced* button. The properties screen for your currently installed video driver appears.
5. Select *Adapter* menu.
6. Click the *Properties* button.
7. Select *Driver* menu.
8. Click *Update driver*. The *Upgrade Device Driver Wizard* window appears.
9. Click the *Next* button.
10. Select *Search for a suitable driver for my device*, then click the *Next* button.
11. Check *Specify a location.* Click the *Next* button.
12. Click the *Browse* button and locate driver you want to install. Click the *OK* button.

13. Click the *Next* button to install the new driver and follow any directions on the screen to finish the display properties setting.

Using the TV-Out Port

This feature is only available with Windows 98. Using the TV-out port, a compatible TV or other compatible display device can be connected and an image displayed. No Audio is transmitted through the TV-Out port. To check if and how your TV displays the TV-out signal see the documentation included with your TV.

Concurrent enabling LCD and TV doesn't support. So, either TV or LCD is recommended. While TV is ON, pressing Fn+CRT/LCD cause *TV-Out* disable. Then, you should follow from step4.(DOS mode-you should restart.)

To enable TV-out:

1. Connect the TV to the TV-Out port using an appropriate cable.
2. Enter System Setup and under the Advanced menu, set *TV Standard* to the appropriate standard for your TV. (see “Using System Setup” for information on setting options.)
3. Reboot your computer.
4. You can see TV display.
5. Click the *Start* button on the Windows 98 taskbar and select *Settings*.
6. Click *Control Panel.* The Control Panel window appears.
7. Double-click the *Display* icon. The Display Properties window appears.
8. Click the *Settings* tab. The Settings screen appears.
9. Click the *Advanced Properties* button. The Advanced Properties screen appears.
10. Click the *Displays* tab. The system will now try to detect a TV connected to the TV-out port.
11. Put a tick in the box under the TV symbol.

If the TV symbol is greyed out then the system has not detected a TV, check that the TV standard in the System Setup is set correctly and that the TV is turned on and connected properly. And you can not use TV-out port in DOS mode.

12. Click *OK* and follow the prompts that appear on the screen.

Using Dual View mode

Single View mode is used to be the basic display method until now which displays same view on all the display devices connected to a system. While *Dual View mode* is the 'Extended screen mode' supported in Windows 98, which displays separate views on each display devices connected to a system.

The default setting on your system is Single View mode.

Setting Dual View mode

To set Dual View mode on your system;

1. Connect peripheral display device such as monitor, TV to your system and start the system.
2. Select *Start* > *Settings* > *Control panel* > *Display* and start *Display properties*.
3. Click *Settings* tab.
4. Click the second monitor among two monitor pictures.
5. When ~ *Do you want to enable this monitor?* message appears, then select *Yes*.
6. Click *Apply* or *OK*.

To confirm whether the system is set properly with Dual View mode;

1. Open *Display properties* and click *Settings* tab.
2. Place the mouse pointer on the first monitor picture and click over a second, then digit number 1 will be shown on the first actual monitor screen. And place the mouse pointer on the second monitor picture and click over a second, then digit number 2 will be shown on the second actual monitor screen.
3. The monitor displays digit number 1 is the primary monitor and number 2 is the secondary monitor.
   When you start *Windows explorer*, then the program displays on the primary monitor, if you can drag it to secondary monitor, then Dual View mode is now working properly.

The secondary monitor has a display of 256 colors (color depth) and 640x480 pixels (resolution) at first. The color depth and resolution of primary/secondary monitors are separately changeable.

To reset the system to Single View mode;

a. Start *Display properties.*

b. Click *Settings* tab.

c. Click the second monitor among two monitor pictures.

d. Uncheck *Extend my Windows desktop onto this monito* .

e. Click *Apply* or *OK*.

Limits and cautions of using Dual View mode

The supporting capabilities of the primary monitor and the secondary monitor are different.

- Primary CRT Controller Capabilities
  - VGA Mode
  - Accelerator Mode
  - Hardware Overlay
  - Hardware Cursor and Hardware Icon
  - Ratiometric Expansion (from up to 1024x768 source)
- Secondary CRT Controller Capabilities
  - No VGA Mode
  - Accelerator Mode
  - No Hardware Overlay
  - Hardware Cursor and Hardware Icon
  - No Ratiometric Expansion

LCD, CRT and TV display devices are supported in your system.

Next table shows the limits and possible usage when you use two or three display devices.

Table 9. Using several display devices

	Primary CRTC	Limits	Secondary CRTC	Limits
Two Displays	LCD		CRT	C, O
	LCD		TV	C, O
	CRT		TV	C, O
	LCD + CRT	R		
	CRT + TV	R		
Three Displays	LCD + CRT	R	TV	C, O

C = Coprocessor mode only
E = No Expansion
O = No Overlay
R = Same Refresh rate

The same CRT controller can not be used for both LCD and TV.

Basically, the program should be started in the primary monitor, then you can drag the program to the secondary monitor to use. But, some programs are not able to drag from the primary monitor to secondary monitor.

The order of Icons on the Windows desktop could be changed after using Dual View mode.

Limits on Video Driver while using Dual View mode

1. Certain combinations of display modes, color depth and refresh rate, when Dual View mode is active, are not supported because of video memory bandwidth limitation.
2. When using Dual View in simultaneous display mode, frame rates in Direct Draw applications are slightly lower because of the need to synchronize buffer flip.
3. If the primary/secondary monitor on Dual View mode is set to high resolution and high refresh rate display mode, the full frame rate setting on DVD-ROM may not played properly. Playing DVD-ROM on Single View mode is highly recommended.
4. It is not possible to use 16 bit colors in Windows 98. If so, secondary monitor on Dual View mode can not support the VGA mode.

5. The video memory uses one memory pool for two screen and Direct Draw application on Dual View mode in Windows 98. So activating the Direct Draw application which does not support that mode could cause fail in changing mode.
6. The program which does not have Dual View compatibility can not be used in the secondary monitor on Dual View mode.
7. The S3 video driver supports VPE (Microsoft video port specification) for multimedia function. So the programs using VPM (Cirrus logic video port specification) may not be supported.
8. Changing Dual View mode to Single View mode while you maximize the window of a program (such as Windows Explorer) could fail. Set the resolution of the secondary monitor lower than the primary monitor, or adjust the window size to smaller (not full screen).
9. When you use CRT and TV together as the same primary monitor or secondary monitor, the display size of the CRT is smaller than TV. The reason is that the frequency bandwidth is different from TV to CRT.
10. When you use Dual View mode, or a display device is set to secondary, the hotkey toggle does not work.

Working with PC Cards

By installing PC Cards, you can add functions to your notebook computer similar to those found on add-in boards for desktop computers. Available PC Cards include:

- Input/output, such as modem, network, pager, video capture, and SCSI cards.
- Storage, such as hard drive and flash (SRAM) cards.
- Combo cards, such as a combination modem and network card.

Your computer includes the following PC Card support:

- Two PC-Card slots: You can install Type I, II, or III cards in the slots. Type III cards are thicker than Types I and II. If you install a Type III card in the bottom slot, you cannot install a card in the top slot.
- CardBus hardware and software: CardBus enables the computer to use 32-bit PC Cards. Windows 98 supports 32-bit and 16-bit PC Cards. The SystemSoft® CardWizard™ for Windows NT program, provided with systems that ship from the factory with Windows NT installed, also supports both 16-bit and 32-bit cards.
- Zoomed video: Both PC Card slots and the video chip on your computer support zoomed video. When you install a zoom video PC Card in the upper or lower slot, data can be transferred directly from the PC Card to video and audio systems without going through the microprocessor. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoomed video.

To use the CardBus and zoomed video technology with Windows NT, install the CardBus and zoomed video driver provided with your PC Card. If no drivers were supplied with your card, contact the PC Card manufacturer. ATA (AT attachment) and modem PC Cards do not require extra drivers.

Maintaining PC Cards

To maintain your PC Cards, follow these guidelines:

- Keep cards away from excessive heat, direct sunlight, and liquids.
- Do not drop, bend, flex, or crush cards when handling.
- Keep dust, magnets, and static electricity away from PC Cards.
- When a card is not in use, carry it in its protective carrying case.
- Some PC Cards include cables that extend from the back of the cards. Be careful not to bend or put excessive strain on these cables.

Using PC Cards

You can install PC Cards while the computer is on.

To insert a PC Card into a slot:

1. Push the slot door in with the PC Card.
2. Align the card with a slot and insert the card into the slot until it locks in place (Figure 41).

The eject button for the card slot operates in two steps.

To remove a PC Card:

1. push the eject button once to pop it outward.
2. Push the eject button again, then the card will be ejected.

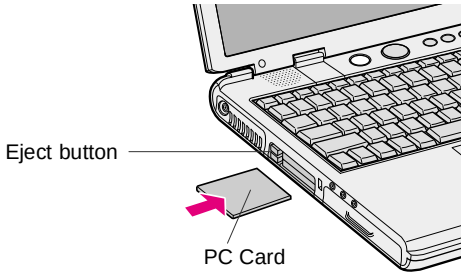


Figure 41. Inserting a PC Card

Windows 98

Windows 98 automatically assigns computer resources (such as communication ports and memory addresses) to a PC Card installed in your computer. For further information on configuring a PC Card in Windows 98, see the index entry *PC card* in the Windows Help. Windows 98 also handles power management for PC Cards.

To remove a PC Card from your computer if your operating system is Windows 98:

Use the following procedures to remove PC Cards, or you may lose data that is being stored to a card.

1. Click the PC Card icon on the taskbar.
2. Select the name of the card you want to remove, and then click the Stop button.
3. Push the card eject button on the side of the PC Card slot when prompted to do so.
4. Pull the card out of the PC Card slot.

Windows NT

Systemsoft Card Wizard is shipped with this notebook computer that use Windows NT as the operating system. When you install a PC Card, CardWizard attempts to configure it automatically. If Card Wizard successfully assigns system resources to your card, the computer beeps twice.

If CardWizard cannot automatically configure your PC Card, the computer beeps once and a message appears telling you that the card has not been configured. Click the Wizard button on the CardWizard window. CardWizard then analyzes why the card was not configured and fixes the problem or gives you information to help fix the problem.

CardWizard works with the PowerProfiler program to manage PC Cards when the computer enters or resumes from rest mode. CardWizard gives you instructions to prevent loss of data before the computer enters rest mode or may stop the computer from entering rest mode. ATA and modem cards can enter rest mode.

Follow these guidelines when using PC Cards with CardWizard:

- Some of LAN (local-area network) cards can be inserted while the computer is on but should be removed only when the system is turned off.

- SCSI cards should be inserted at startup to enable Windows NT to find the device attached to the SCSI card. SCSI cards can be removed when the computer is turned off. If you restart your computer without the SCSI card installed, a message may appear telling you that a service did not start. You can ignore this message.
- Modem and ATA cards can be inserted and removed while the computer is on.

Before you remove a modem or ATA card from your computer, stop the card through the CardWizard program or you may lose data.

To stop and remove a PC Card from your computer:

1. In the SystemSoft CardWizard screen, click with the right mouse button on the name of the card you want to remove.
2. Click Stop in the Actions menu. A red stop sign appears on the main screen when the card is stopped.
3. Click OK.
4. Push the card eject button on the side of the PC Card slot.
5. Pull the card out of the slot compartment.

For more information on using the CardWizard program, see the CardWizard Help.

Using Options

You can order the following options for your Notebook computer from your authorised reseller:

- An extra AC adapter.
- An auto adapter that enables you to charge the computer's battery and operate the computer while in an automobile.
- An extra battery pack.
- An upgraded hard drive. Optional hard drives are available to fit in the hard drive compartment or the Flex-Bay.
- 32, 64 and 128 MB SDRAM memory modules that enable you to upgrade your computer's memory to a maximum of 256MB.
- A CD-ROM drive module.
- A DVD-ROM drive module.
- A Superdisk LS-120 drive.
- Docking options that enable you to use your computer like a desktop computer.

The options that are available may change periodically. Contact your reseller for updated information on current and new options.

AC Adapter

The optional AC adapter operates in the same way as the adapter that came with your computer does. See "Attaching the AC Adapter" on page 5 for information about the AC adapter.

Battery Pack

You can order another smart lithium-ion battery pack or dumb Ni-MH pack for your computer. See "Using the Battery" on page 35 for information on the battery.

Hard Drives

You can order optional hard drives for your system. A hard drive can be installed in the hard-drive compartment to replace your existing hard drive or you can order a hard drive that fits in the Flex-Bay. See ”Installing a Hard Drive” on page 33 for information on installing a new drive in the hard-drive compartment. See ”Using the Flex-Bay” on page 23 for information on installing a device in the Flex-Bay.

Auto Adapter

The auto adapter enables you to power your computer and charge the computer battery.

- In an automobile, through the +12 volt cigarette lighter socket.

To use the adapter:

1. Plug the adapter cable into the AC adapter connector on the computer.
2. Connect the adapter to the cigarette lighter socket.

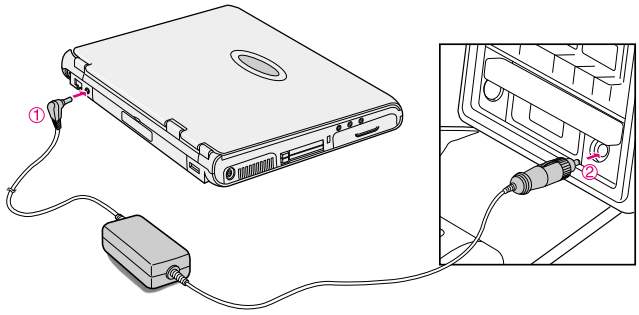


Figure 42. Connecting Auto Adapter

The light on the adapter is green when the adapter is working properly. The light may be red for a few seconds when you first plug in the adapter or while you use the adapter. This is normal. If the light remains red, check to make sure the adapter is connected correctly.

If the adapter is plugged in and the adapter light does not turn on:

- Check the adapter connections.

- If you are in an automobile, turn on the automobile's ignition to supply power to the adapter. In some vehicles, power to the cigarette lighter socket is alway on and you do not need to turn on the ignition.
- If the previous procedures do not activate the adapter, you may need to change the fuse in the adapter. To remove the fuse from the adapter, unscrew the adapter cap with a pair of pliers and remove the cap. Replace the fuse with an 8 amp fuse. In an automobile, you may need to replace the fuse in the cigarette lighter socket.

When you connect the adapter to the cigarette lighter, the computer's battery starts charging immediately.

To prevent loss of data and possible damage to the computer, unplug the auto adapter when starting and stopping the automobile engine.

Memory Modules

You can increase system memory by installing optional memory modules. You can install a 32, 64 or 128 MB modules.

To avoid possible system problems, use only approved memory modules in your computer.

Before You Install Memory

To prevent personal injury and damage to the equipment, follow the precautions listed here before installing a memory module.

Take the following precautions when installing a memory module:

- Before you remove the memory module compartment door, turn off the computer, unplug the power cord, and remove the battery. Also, disconnect any peripheral devices.
- Before handling a memory module, discharge any static electricity by touching a grounded surface or using a grounding wrist strap.
- Do not insert objects with conductive material, such as metal screwdrivers or graphite pencils, into the memory-module compartment.

- Be careful in handling the metal plate of the memory door.

Installing a Memory Module

Handle a memory module carefully. Hold them only by the edges.

To install a memory module:

1. Turn the computer over so that the bottom faces up.
2. Using a screwdriver, remove the screw that holds the memory-module compartment door in place (Figure 43).

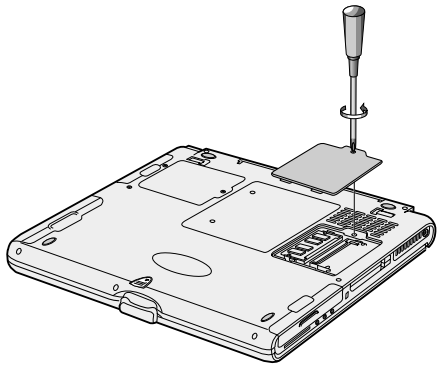


Figure 43. Removing the Memory Module Compartment Door

3. Grasp the edge of the door and pull the door off the chassis.
4. Remove installed modules if necessary:

When removing modules, pull on the plastic portion of the connector slots tabs only. Do not pull on the metal part of the tabs, or you may damage the tabs.

a. Pull the tabs on the connector slot outward slightly, until the edge of the memory module pops up (Figure 44).

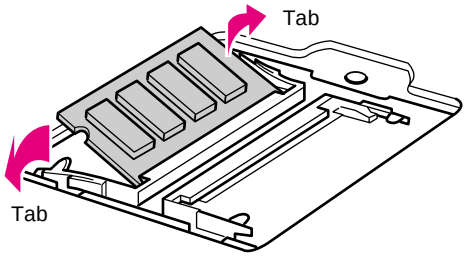


Figure 44. Removing a Memory Module

b. Hold the memory module by the edges and pull it forward out of the compartment.

5. Align the connector on the memory module with the connector of the slot.

6. Push the memory module into the slot at a slight angle until the connectors are fully engaged (Figure 45).

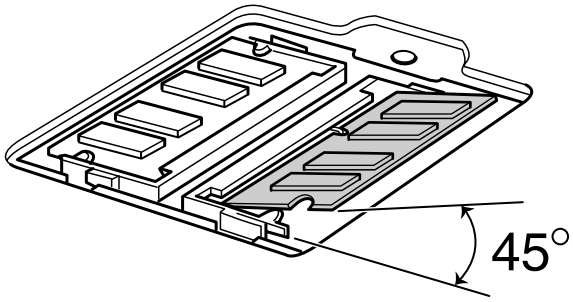


Figure 45. Installing a Memory Module

7. Push down on the edge of the memory module until the module snaps into place.

8. Align the memory module compartment door with the compartment and push the door down until it snaps into place.

9. Reinstall the screw you removed in step 2.

10. Turn on the computer and perform a complete POST to check the memory integrity.

CD-ROM Drive

If your system did not ship with a CD-ROM drive included, you can order a drive. See ”Using the CD-ROM Drive” on page 28 for directions on installing the CD-ROM drive.

DVD-ROM Drive Module

If your system did not ship with a DVD-ROM drive included, you can order a drive. The DVD-ROM drive module can be inserted into your computer exactly as you would insert a CD-ROM. See ”Using the CD-ROM Drive” on page 28 for directions on installing and using the CD-ROM drive. There is MPEG-2 software included with the drive that will enable you to play DVD movies from the DVD-ROM drive.

Superdisk LS-120 Drive

The LS-120 drive enables you to store 120 MB of data on a single, 3.5-inch LS-120 diskette. It is backward compatible with standard HD 1.44MB 3.5-inch diskettes and it can read and write to them up to three times faster. The LS-120 drive fits in the Flex-Bay, see “Using the Flex-Bay” on page 23

If you want to boot from LS-120, you have to disable "Diskette A:" in BIOS setup Boot menu.

Docking Options

Contact your reseller for a list of docking options available for your Notebook computer. User’s manuals are included with the docking options.

About Drivers and System Resources

This section gives you basic information about drivers and system IRQs.

Drivers

A driver is a program that enables the operating system to work with a hardware device. Your computer includes drivers for the audio, video, infrared, touchpad, keyboard, CD-ROM drive, hard drive, floppy drive, and PC Card controller. When you add a device to your computer, such as a printer, you install a driver for that device. Different drivers are used by different operating systems.

IRQs

Most of the devices in your computer or connected to your computer need their own IRQ (interrupt request line). The IRQ is a hardware line that a device can use to send signals to the microprocessor. When the device needs the microprocessor's service, the device sends an interrupt request signal to the microprocessor.

The number of IRQs available for any computer is limited by industry standards. Because it ships with numerous features, this computer uses most of the available IRQs. If you add another device to your computer, you may need to disable an existing device to free up an IRQ for the new device. IRQ resources are of particular concern when the computer is attached to a docking device.

The default IRQ settings that are used by your computer are listed in Table 10.

Table 10. IRQs

IRQ	Windows 98	Windows NT 4.0
0	System timer	System timer
1	Keyboard	Keyboard
2	Internal Controller	Internal Controller
3	IrDA Port	COM 2, COM 4
4	COM 1, COM 3	COM 1, COM 3
5	Audio/USB	Audio/USB

IRQ	Windows 98	Windows NT 4.0
6	Floppy controller	Floppy controller
7	LPT1 (parallel port)	LPT1 (parallel port)
8	CMOS/Clock	CMOS/Clock
9	ACPI bus SCI IRQ	Reserved
10	Reserved	Reserved
11	CardBus/Modem	CardBus/Modem
12	Touchpad, PS/2 mouse	Touchpad, PS/2 mouse
13	Numeric data processor	Numeric data processor
14	IDE 1 (hard drive)	IDE 1 (hard drive)
15	IDE 2 (CD-ROM drive)	IDE 2 (CD-ROM drive)

In Windows 98, you can configure a device so that the device is disabled when you connect your computer to a docking station but enabled when the computer is not connected to the docking station. With this configuration, an IRQ is available for a peripheral device that you connect to the docking station. See your Windows 98 manual for more information.

Service Pack 4 for Windows NT 4.0

Microsoft® Service Pack 4 (SP4) is included with computers shipped from the factory with Windows NT installed. Any time you change or add components to your Windows NT system, you need to reinstall SP4.

The version of SP3 on your computer's hard drive includes the correct video driver for your system. If possible, always install this version on your computer.

To install SP3:

1. Run the executable file. On your computer's hard drive this file is located at C:\SP4\i386\update.
2. Follow the instructions on the screen with these exceptions:
    a. When you are prompted to overwrite the uninstall directory, click the Yes button.

b. When a prompt identifies your pcmcia.sys file as an OEM-installed file and asks you to overwrite the version of the file on your system with the service pack version, click the No button.

If you install any future service packs on your computer, make sure that, when you are prompted, you do not overwrite the pcmcia.sys file, or you may be unable to use your computer.

If you install SP4 from any source other than your computer's hard drive, the video driver that was installed on your computer at the factory is overwritten. After you install the service pack, you must reinstall the video driver the first time you restart your computer, see "Changing the Video Driver" on page 94 for more information.

Troubleshooting

If you ever have difficulty running your computer, follow these steps:

1. Consult the following sections for advice on how to handle system problems.
2. If steps 1 do not help you to resolve the problem, contact your reseller.

Operating Problem

This section tells you what to do if you have problems running your computer. If any problem persists after you take corrective action, contact your reseller for assistance.

The computer does nothing when you turn it on.

Has the battery run down? Connect the power cord to get power and recharge the battery. Try turning on the computer again.

Nothing appears on the LCD panel when you turn on the computer.

Adjust the brightness on a TFT LCD. Are you using an external monitor? If so, press <Fn+F5> to return to the LCD panel.

Nothing appears on the external monitor when you switch the display to it.

Is the monitor properly connected to the computer? Is the monitor's power cord connected to an AC wall outlet? Check the brightness and contrast controls on the monitor. Does the program appear on the LCD panel instead of the external monitor? If so, press <Fn+F5> to switch to the monitor. Try turning the monitor off and on again.

The external monitor displays flashes or waves.

Check the cables between the monitor and the computer. Are they properly installed?

Some of the letter keys type numbers instead of the indicated letters.

Is the Num Lock light on? If so, the numeric keypad on the keyboard is active. To return the keypad keys to typing letters, press <Num Lock>.

Battery power seems to run out faster than expected.

If you are running the computer from the battery rather than the power cord, make sure that you set the *Idle Mode* field in System Setup to *On*. This setting enables

the microprocessor and the hard drive to slow down when the computer is not busy.

Certain software programs "hang" during operations when there is no interaction with the keyboard or peripheral devices.

Your computer may be in Suspend or Rest mode. Tap the touchpad to resume from Suspend or press the power button to resume from rest.

A PC Card does not work correctly.

Make sure that the PC Card is inserted left side up in the PC Card slot. Check that the card is inserted fully into the slot. If you are using a PC Card modem, check the modem cable connections. For the Windows 98 operating system, try setting the *Installed OS* field in System Setup to *Yes* to enable Windows 98 to autosense an older PC Card. For the Windows NT operating system, make sure *Installed OS* in System Setup is set to *No*.

The System Setup settings are not retained when you turn off the computer.

The CMOS battery inside the computer may need to be replaced. The CMOS battery provides power to save the system BIOS information when the computer is turned off. Normally, the CMOS battery lasts for several years. Do not attempt to open the chassis and replace this battery yourself or your warranty is void. Have an authorized the manufacturer's service center replace the CMOS battery.

Infrared Problems

If your computer's operating system is Windows 98, you can enable and use the infrared port. The Windows NT 4.0 operating system does not support infrared.

If you are unable to transfer files with the infrared port, check the following:

- Make sure the *Infrared port* field in System Setup is set to *2F8, IRQ 3*. The field is in the *I/O Device Configuration* under *Advanced Menu*.
- The receiving device must be positioned properly. There must be no more than three feet of distance between the computer's infrared port and the receiving infrared device.
- The sending and receiving devices need to be on the same level vertically. Place them on the same table if possible.
- Make sure the infrared ports on the sending and receiving devices face each other, with no more than a 30 degree angle between the two infrared ports.

- Make sure that nothing is obstructing the file transfer path between the computer’s infrared port and the receiving infrared device.

If you still cannot transfer a file, see the online help.

Modem Problems

My modem doesn't connect to services or disconnects during communicatiom

If your modem has difficulty in connecting to on-line services and sustaining communications, firstly check the quality of the phone line. Interference from certain devices or poor line power conditions may degrade the quality of your connection. Under these conditions gradually reduce the communication speed of your modem until a reliable connection is achieved.

Check your on-line service provider. Service line or service may be halted.

When using a PBX phone system I can't dial on my modem.

If you use a PBX phone system you may need to press a number i.e. '9' to connect to an external line, you should enter the following command before trying the connection and check modem initialization.

ATX3&W

And add "9," as the external line prefix (in our example) of the phone number when using the dial command "ATDT9, 123-4567".

Screen displays random or garbage characters during communications.

After your modem has connected to the on-line service, your screen may display garbage characters or after-images in screen transitions. This problem is caused by a mismatch of the terminal modes between communications service and communications programs. You need to match the terminal modes to each other.

Refer the user's guide of the communications program you're using.

Reports error message that insufficient Hard Disk space is available.

Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required.

If you're using WWW of the internet, many picture and data files can get downloaded to your HARD DISK every time you visit a home page, which will consume a lot of your HARD DISK space. Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required. For more detailed information about the method of deleting, refer to the help of the Web browser you've been using or your user's guide.

Depending on telephone line status,or types of Fax machines/ programs that send/receive the Fax, Fax transmission/ reception may not work correctly. In that case, please try other Fax programs. (e.g. Microsoft Fax)

Specifications

Table 11 gives the specifications for computers.

Table 11. Hardware Specifications

Dimension	
* LCD viewing area	
LCD viewing area (14.1 TFT)	11.2 x 8.4 in (285.7 x 214.3 mm)
LCD viewing area (15” TFT)	12.0 x 9.0 in (304.8 x 228.6 mm)
* All-In-One type computer	
Width	12.46 in (31.65 cm)
Depth	10.2 in (26 cm)
Height	1.51 in (38.4 cm)
Weight (with integrated floppy drive, Li-Ion battery & 14.1” TFT LCD & weight saver)	7.04 lb (3200 g)

Environment	
Ambient temperature, operating	50^{o}–90^{o} F (10^{o}–32^{o}C)
Ambient temperature, storage	23^{o}–104^{o} F (-5^{o}–40^{o} C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	5–90%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine

Lithium-Ion Smart Battery	
Normal Weight	0.99lb (450g)
Nominal open circuit voltage	11.1 VDC
Capacity, typical	5100 mAhr, 56.6whr
Charging time, approximate, with computer turned off , typical	3.0 hr
Charging time, approximate, with computer turned on , typical	5.0 hr
Average battery life, with no power management enabled	3.0 hr

External AC Adapter	
Operating voltage	100-240 VA
Line frequency	50-60 Hz
Input current	1.5 A 100 V ~ 0.8 A 240 V
Output current	3.15 A
Output voltage	19.0 VDC

Abbreviations

Your computer's documentation uses the following abbreviations:

A . . . . . Amperes

AC . . . . . Alternating current

ACPI . . . . . Advanced Configuration and Power management Interface

APM . . . . . Advanced Power Management

ATA. . . . . AT attachment (refers to the hard-drive interface in an AT-compatible computer)

ATAPI. . . . . AT attachment packet interface

BBS . . . . . Bulletin board system

BIOS . . . . . Basic input/output system

C . . . . . Centigrade

CD . . . . . Compact disc

CD-ROM . . Compact disc read-only memory

cm . . . . . Centimeters

COM . . . . . Communication (as in communication port)

CMOS . . . . . Complementary metal-oxide semiconductor

DC . . . . . Direct current

DMA . . . . . Direct memory access

DPMS . . . . . Display power-management signaling

DRAM. . . . . Dynamic random access memory

DSTN . . . . . Double layer super twist nematic

ECP . . . . . Extended capabilities port

EPP . . . . . Enhanced parallel port

F. . . . . Fahrenheit

FIR . . . . . Fast infrared

ft . . . . . Feet

g . . . . . gram

G . . . . . Gravity

GB . . . . . Gigabytes

hr . . . . . hour

Hz . . . . . Hertz
IDE . . . . . Integrated drive electronics
in . . . . . Inches
I/O . . . . . Input/output
IrDA . . . . . Infrared Data Association
IRQ . . . . . Interrupt request line
ISA . . . . . Industry Standard Architecture
KB . . . . . Kilobytes
kg. . . . . Kilograms
LAN. . . . . Local-area network
lb . . . . . Pounds
LBA. . . . . Logical block addressing
LCD. . . . . Liquid-crystal display
m . . . . . Meters
mA. . . . . Milliampere
mAhr. . . . . Milliampere hour
MB. . . . . Megabyte
mm . . . . . millimeter
MPEG . . . . . Motion Picture Experts Group
MPU . . . . . Microprocessor unit
ms . . . . . Millisecond
PDF . . . . . Portable document format
PC . . . . . Personal computer
PCI . . . . . Peripheral component interconnect
PCMCIA. . . Personal Computer Memory Card International Association
POST. . . . . Power-on self-test
PNP . . . . . Plug and play
PS/2 . . . . . Personal System/2
RAM . . . . . Random-access memory
ROM . . . . . Read-only memory
SVGA . . . . . Super video graphics array
S-VHS . . . . . Super VHS
TFT . . . . . Thin-film transistor

USB . . . . . Universal serial bus
V . . . . . Volt
VAC . . . . . Voltage alternating current
VCC . . . . . Voltage collector current
VDC . . . . . Voltage direct current
whr . . . . . Watt hour

Glossary

AC adapter

The AC (or alternating current) adapter regulates current coming into your computer from the wall outlet. The current at the wall outlet is alternating current and needs to be changed by the adapter to DC (direct current) before your computer can use it for power.

ACPI

ACPI(Advanced Configuration and Power Interface)- a method for describing hardware interfaces in terms abstract enough to allow flexible and innovative hardware implementations and concrete enough to allow shrink-wrap OS code to use such hardware interfaces.

BIOS

BIOS stands for basic input/output system. The BIOS is software (often called firmware) that is independent of any operating system. It enables the computer to communicate with the screen, keyboard, and other peripheral devices without using programs on the hard disk.

The BIOS on your computer is flash BIOS, which means that it has been recorded on a flash memory chip that can be updated if needed.

Boot

To start your computer. A cold boot resets the entire computer and runs through all computer self-tests. A warm boot clears out computer memory only.

Boot disk

A disk containing operating system programs required to start your computer. A boot disk can be a floppy disk, hard drive, or compact disc.

Byte

The basic unit of measure for computer memory. A character—such as a letter of the alphabet—uses one byte of memory. Computer memory is often measured in kilobytes (1,024 bytes) or megabytes (1,048,576 bytes).

Each byte is made up of eight bits. For more information on bytes and bits, see an introductory book on computers.

Cache memory

Cache is very fast, zero-wait-state memory located between the microprocessor and main memory. Cache reduces the average time required by the microprocessor to get the data it needs from the main memory by storing recently accessed data in the cache.

CardBus

CardBus technology enables the computer to use 32-bit PC Cards. Hardware in the computer and the Windows 98 operating system provide support for the 32-bit cards. The voltage of 32-bit cards (3.3 volts) is lower than that of 16-bit cards (5 volts). The 32-bit cards can transmit more data at a time than the 16-bit cards, thus increasing their speed.

CMOS memory

CMOS (complementary metal oxide semiconductor) memory is powered by the CMOS battery. The System Setup settings and other parameters are maintained in CMOS memory. Even when you turn your computer off, the information in CMOS memory is saved.

COM port

COM stands for communication. COM ports are the serial ports in your computer.

Compact Disc

A compact disc (CD).

Conventional memory

The first 640 KB of system memory. Operating systems and application programs can directly access this memory without using memory-management software.

Disk

The device used by the computer to store and retrieve information. *Disk* can refer to a floppy disk, hard disk, or RAM disk.

Disk cache

A software device that accumulates copies of recently used disk sectors in RAM. The application program can then read these copies without accessing the disk. This, in turn, speeds up the performance of the application.

A cache is a buffer for transferring disk sectors in and out of RAM. Data stored in a disk cache is a copy of data already stored on the physical disk.

DMA (direct memory access)

A method of transferring data from a device to memory without having the data pass through the microprocessor. Using DMA can speed up system performance.

DPMS

Display Power Management Signalling. Displays or monitors that comply with this can be managed by the Power Management features found in the system setup.

Floppy disk

A removable disk, also called *floppy* or *diskette*.

Hard drive

Also called *fixed* disk. A hard drive is connected to the computer and can be installed or removed. Data written to a hard drive remains until it is overwritten or corrupted.

The 2.5-inch hard drive in your computer was designed for use in a notebook computer. Because hard drives in notebook computers are smaller than those in desktop computers, their maximum storage capacity may be less than that of desktop hard drives. However, because of their smaller size, the drives handle shock and vibration better than larger drives, which is important for a notebook computer.

I/O

Input/output. Refers to peripheral devices, such as printers, that are addressed through an I/O address.

I/O address

I/O stands for input/output. Peripheral devices, such as printers, are addressed through the I/O port address.

IRQ (interrupt request line)

The IRQ is a hardware line that a device uses to signal the microprocessor when the device needs the microprocessor's services. The number of IRQs is limited by industry standards.

LCD (liquid-crystal display)

The LCD screen on your computer differs from the display screen of a desktop monitor. Most desktop monitors use CRT (cathode-ray tube) displays, which work by moving an electron beam across phosphor dots on the back of the screen. The phosphor dots light up to show the image. LCDs use a liquid-crystal solution between two sheets of polarizing material. Electric current passing through the

liquid aligns the crystals so that light can or cannot pass through them, creating an image.

MB(megabyte)

1,024 kilobytes.

Megabit

1,048,576 bits or about 128 kilobytes.

Operating system

A program that supervises the computer's operation, including handling I/O. Application programs and users can request operating-system services. A user might request operation-system services to copy files or format a disk. An application program might use the operating system to obtain keyboard input, write data to a file, or write data to a screen.

PC Card

PC Card stands for personal computer card. The Personal Computer Memory Card International Association (PCMCIA) defines the standards used to develop all PC Cards. PC Card types include: modems, Ethernet adapters, SCSI adapters, ATA cards, and memory cards.

PC slot

The PC slot is the hardware slot in the computer where the PC Card is placed.

Pixel

A pixel is an individual dot in a graphic displayed on your computer. The pixels are so close together that they look as though they are connected. An LCD screen displays thousands or millions of pixels.

Plug and Play

A plug and play operating system automatically configures computer components to work with your system. With this type of operating system, you normally do not need to set jumpers on devices or set memory addresses or IRQs.

POST

POST stands for power-on self-test. POST is a test performed by the computer whenever you turn on the power. POST checks system integrity.

RAM (random access memory)

The computer's system memory, including conventional and extended memory. You can write to and read from RAM. Information stored in RAM is temporary, and is erased when the system is turned off.

Refresh rate

The refresh rate is the rate at which the image on the LCD screen is rewritten to the screen. A fast refresh rate helps keep the image from flickering.

Resolution

The resolution is the sharpness or clarity of the image on your LCD screen. Resolution is measured by the number of pixels the computer's screen can display. For example, a resolution of 800x600 means that the screen can display 800 pixels in row and can display 600 rows. The more pixels displayed, the higher the resolution and the better the image.

ROM (read-only memory)

Permanent computer memory dedicated to a particular function. For example, the instructions for starting the computer when you first turn on power are contained in ROM. You cannot write to ROM. (ROM is not the same as RAM).

Sector

Also known as *disk sector*. The portion of a track that is numbered and can hold a specified number of characters (usually 512 KB).

Shadow RAM

A write-protected area of RAM that contains a copy of the BIOS. As the computer boots, the BIOS is copied from its permanent location in ROM to RAM. The BIOS can be executed much faster in RAM than in ROM. The BIOS remains in shadow RAM until you turn off the computer.

TFT (thin film transistor) LCD

A TFT LCD uses a separate transistor circuit to control each pixel. This technology provides the best resolution for an LCD screen. A TFT LCD is also sometimes called an active matrix LCD.

Zoomed video

Zoomed video technology enables zoom video PC Card to transfer data directly from the card to video and audio systems without going through the microprocessor. This process improves video performance. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoom video.

Recording the Computer Hardware Configuration

In the spaces provided, write the System Setup program settings. If your computer ever loses configuration information, you can enter the information from this section into System Setup to restore it.

MAIN MENU

Legacy Diskette A: ☐ **1.44/1.25 MB 3 1/2“** ☐ **Disabled**

IDE ADAPTER SUBMENU

Primary Master :

Type:_____

Multi-Sector Transfers:_____

LBA Mode Control: ☐ **Enabled** ☐ **Disabled**

32 Bit I/O: ☐ **Enabled** ☐ **Disabled**

Transfer Mode: ☐ **Standard** ☐ **Fast PIO 1** ☐ **Fast PIO 2** ☐ **Fast PIO 3** ☐ **Fast PIO 4**

Ultra DMA Transfer Mode: ☐ **Mode 0** ☐ **Mode 1** ☐ **Mode 2** ☐ **Disabled**

Secondary Master :

Type:_____

Multi-Sector Transfers:_____

LBA Mode Control: ☐ **Enabled** ☐ **Disabled**

32 Bit I/O: ☐ **Enabled** ☐ **Disabled**

Transfer Mode: ☐ **Standard** ☐ **Fast PIO 1** ☐ **Fast PIO 2** ☐ **Fast PIO 3** ☐ **Fast PIO 4**

Ultra DMA Transfer Mode: ☐ **Mode 0** ☐ **Mode 1** ☐ **Mode 2** ☐ **Disabled**

ADVANCED MENU

Installed O/S: ☐ **Other/WinNT4.0** ☐ **Win95/Win98APM** ☐ **Win98ACPI/Win2000**

PS/2 Mouse: ☐ **Disabled** ☐ **Single Mouse** ☐ **Dual Mouse**

Screen Expansion: ☐ **Enabled** ☐ **Disabled**

TV Out Mode: ☐ **NTSC** ☐ **PAL**

Display Configuration: ☐ **LCD** ☐ **CRT** ☐ **Both**

I/O DEVICE CONFIGURATION SUBMENU

Serial port: ☐ **Enabled** ☐ **Auto** ☐ **Disabled**

Base I/O Addres ☐**s3F8, IRQ** ☐ **42F8, IRQ 3** ☐ **3E8, IRQ 4** ☐ **2E8, IRQ 3**

Infrared port: ☐ **Enabled** ☐ **Auto** ☐ **Disabled**

Base I/O Addres ☐**s3F8, IRQ** ☐ **42F8, IRQ 3** ☐ **3E8, IRQ 4** ☐ **2E8, IRQ 3**

Mode ☐ **FIR**

DMA Channel ☐ **DMA 3** ☐ **DMA 1**

Parallel port: ☐ **Enabled** ☐ **Auto** ☐ **Disabled**

Mode ☐ **Output only** ☐ **Bi-directional** ☐ **EPP** ☐ **ECP**

Base I/O Addres ☐**s378, IRQ** ☐ **378, IRQ 5** ☐ **278, IRQ 7** ☐ **278, IRQ 5** ☐ **3BC, IRQ 7** ☐ **3BC, IRQ 5**

DMA Channel ☐ **DMA 1** ☐ **DMA 3**

Floppy disk controller: ☐ **Enabled** ☐ **Auto** ☐ **Disabled**

Local Bus IDE adapter: ☐ **Both** ☐ **Disabled** ☐ **Primary** ☐ **Secondary**

Large Disk Access Mode: ☐ **DOS** ☐ **Other**

SECURITY MENU

Set password _____

Password on boot: ☐ **Enabled** ☐ **Disabled**

Fixed disk boot sector: ☐ **Normal** ☐ **Write Protect**

POWER MENU

Intel(R) Speedstep(TM) ☐ **Performance** ☐ **Battery**

☐ **Automatic** ☐ **Disabled**

Idle Mode: ☐ **Off** ☐ **On**

Suspend Mode: ☐ **Save to RAM** ☐ **Save To Disk**

Suspend Timeout: ☐ **Off Time**_____

Resume On Modem Ring: ☐ **On** ☐ **Off**

Resume On Time: ☐ **On** ☐ **Off**

Resume Time:_____

BOOT MENU

Logo Screen: ☐ **Enabled** ☐ **Disabled**

Summary screen: ☐ **Enabled** ☐ **Disabled**

Boot Device Priority:

Boot option 1:_____

Boot option 2:_____

Boot option 3:_____

Boot option 4:_____

Notices

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, mechanical photocopying, recording or otherwise, without the prior written permission of the manufacturer.

The information within this manual is subject to change without notice.
Manufacturer shall not be held liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance or use of this material.

Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners.
Use of this copyright protection technology must by authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Product names mentioned herein are for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies.

Copyright © 2000 All rights are reserved

Important Safety Instruction

Read all of these instructions, and save these instructions for later use.

- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water. Never spill liquid of any kind on the product.
- Do not place this product on an unstable cart, stand, or table.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
- Before connecting this product to a power source, check the required voltage and frequency match the available power source.
- This computer is powered by an internal battery pack or by an external AC power source, Which is supplied with the computer. Use of another battery pack or AC power source may present risk of fire or explosion.
- This product is equipped with a 2-wire type plug. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
- Do not allow anything to rest on the power cord.
- Do not place this product in a location where someone may trip over the cord.
- If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- Never push objects of any kind into this product through the cabinet slots, as they may touch dangerous voltage points or short out parts; that could result in a risk of fire or electric shock.
- Except as explained elsewhere in this manual, do not attempt to service this product yourself.
- Handle batteries, CD-ROM, hard drives and any drives with care. If dropped, they may damaged.
- Do not allow the battery to be exposed to direct sunlight for extended periods of time.
- Do not attempt to disassemble the battery. If the battery is disassembled and the electrodes are exposed to outside, the battery may generate eat and smoke by chemical reaction.
- Do not expose the battery to moisture or chemicals.
- Charge the battery only as described in this document.
- Do not short circuit the battery terminals as the resulting high currents can damage the battery.

- The battery should not be used to power other products.
- Do not dispose of a used battery in a fire or incinerator, as an explosion may result.
- The battery should be recycled.
- Do not subject the battery to temperature should not less than -20 degrees Centigrade or greater than 50 degrees Centigrade.
- Unplug this product from the wall outlet and refer problems to the service representative under the following conditions:
  - When the power cord or plug is damaged or frayed.
  - If liquid has been spilled into product.
  - If the product has been exposed to rain or water.
  - If the product does not operate normally when the operating instructions are followed, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage.
  - If the product exhibits a distinct change in performance.

Battery Disposal

Warning : Do not put rechargeable batteries or products powered by non-removable rechargeable batteries in the garbage.

Contact your customer service representative for information on how to dispose of batteries that you cannot use or recharge any longer.
Follow all local regulations when old batteries.

Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: "Something About Interference." This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by our company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

Federal Communications Commission (FCC) Part 68 Statement

Note:
This equipment compiles with part of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number(REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment uses the following USOC jacks : RJ11C

An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or promises wiring using a compatible modular jack which is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices which may be connected to telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five(5.0). To be certain of the number of devices that may be connected to a line, as determined by total RENs, contact the local telephone company to determine the maximum REN for the calling area.

If the terminal equipment causes harm to the telephone network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advanced notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment (SENS Modem) for repair or warranty information, please contact your local distributor. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

The user must use the accessories and cables supplied by the manufacturer to get optimu performance from the product.

No repairs may be done by the customer.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be any number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your fax machine, refer to your communications software user manual.

CTR21 Statement

The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Canadian Radio Interference Regulations

This apparatus does not exceed the class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil n’émet pas de bruits radioélectriques dépassant les limites applicable aux appareils de la classe B prescrites par le règlement de brouillage radioélectrique dicté par le Ministère des Communictions du Canada.

CLASS 1 LASER PRODUCT.

CAUTION

The laser beam used by this CD-ROM drive unit can be harmful to the eyes. Do not attempt to open the unit. All service procedures should be performed by an authorized dealer or distributor.

WARNING

Never use any optical instruments in conjunction with this unit. To do so will greatly increase the hazard to your eyes.

ADVARSEL

USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION.

SE IKKE IND I STRÅLEN - HELLER IKKE MED OPTISKE INSTRUMENTER.

ADVARSEL

USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES.

STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.

LUOKAN 1 LASERLAITE.

VAROITUS!

LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTöOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTöMÄLLE LASERSÄTEILYLLE.

KLASS 1 LASERAPPARAT.

VARNING

OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FöR OSYNLIG LASER-STRÅLNING, SOM öVERSKRIDER GRÄNSEN FöR LASERKLASS 1.

Labels appearing on the drives:

CAUTION - INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

VORSICHT! UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEöFFNET. NICHT DEM STRAHL AUSSETZEN!

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR öPPNAD. STRÅLEN ÄR FARLIG.

ADVARSEL - USYNLIG LASERSTRÅLING VED ÅBNING.UNDGÅ UDS/ETTELSE FOR STRÅLING.

CLASS 1 LASER PRODUCTLASERSCHUTZKLASSE 1 PRODUKT

Power Cord Requirement

The power cord set (appliance coupler, flexible cord, and wall plug) you received with your computer meets the requirements for use in the country where you purchased your equipment. Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your authorized dealer, reseller, or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord set must be at least 6.00 feet (1.8m) and a maximum of 9.75 feet (3.0m).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord set must have a minimum current capacity of 7 A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the computer.

Country-Specific Power cord Set Requirements

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	*
Austria	OVE	*
Belgium	CEBC	*
Canada	CSA	* *
Denmark	DEMKO	*
Finland	FIMKO	*
France	UTE	*
Germany	VDE	*
Italy	IMQ	*
Japan	JIS	* * *
The Netherlands	KEMA	*
Norway	NEMKO	*
Sweden	SEMKO	*

Switzerland	SEV	*
United kingdom	BSI	*
United States	UL	* *

Notes:

* Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

* * Flexible cord must be Type SVT or equivalent, No.18 AWG. Wall plug must be a two-pole grounding type.

* * * Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registraion number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 0.75 mm² conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15 A, 125V) configuration.